

CHAPTER 9. NATURAL RESOURCE PROTECTION

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Article 9.1. Tree Conservation

Sec. 9.1.1. Intent

The intent of the tree conservation regulations is to preserve tree coverage, mature trees and lessen the impact of development on the surrounding properties. The most significant trees, greater basal area tree stands, and healthy trees in the most appropriate locations, should be considered when granting an alternate.

Sec. 9.1.2. Applicability

Prior to approval of any subdivision of any tract two acres or greater in size or site plan for a parcel two acres or greater, tree conservation areas must be provided in accordance with the requirements of this UDO, provided that delineation of tree conservation areas for a site subject to either condemnation or the threat of condemnation shall be delayed until a site plan or further subdivision of the parcel first occurs.

Sec. 9.1.3. Tree Conservation Required

A. Tree Conservation

1. Tree conservation area requirements by district are set forth below. The amount of conservation area is calculated as a percentage of the gross site area.

District	Conservation Area Required (min)
R-1, R-2	15%
All other districts	10%

2. Any eligible tree conservation priority in conflict with a build-to requirement is not required to be protected.

Sec. 9.1.4. Tree Conservation Area Allocation

A. Primary Tree Conservation Areas

The following are primary tree conservation areas and must be the first areas saved to meet the tree conservation requirement. All primary tree conservation areas on the site must be established even if doing so exceeds the minimum required percentage.

1. -SHOD-1 and SHOD-2 protective yards (see Sec. 5.3.1).
2. Parkway frontage protective yards (see Sec. 3.4.3)
3. CM District primary tree conservation areas (see Article 4.2).
4. -MPOD protective yards (see Sec. 5.2.2).
5. Tree protection areas in a Watershed Protection Overlay District (see Sec. 9.1.9).
6. Required watercourse buffers (see Sec. 9.2.3).
7. A healthy, champion tree and its critical root zone.
8. Zone 2 of Neuse River Riparian Buffers, as established in title 15A of the North Carolina Administrative Code subarticle 2B Section .0233.
9. Areas with a gradient of 45% or greater that are adjacent to or within floodways.

B. Secondary Tree Conservation Areas

1. The following secondary tree conservation areas, listed in priority order from highest to lowest, must be included once the primary tree conservation areas are exhausted.
 - a. An undisturbed area adjoining a Major or Minor Thoroughfare designated on the Comprehensive Plan varying in width between 0 and 100 feet; provided that, the total undisturbed area is equal to an area measured 50 feet perpendicular to the Thoroughfare;
 - b. A minimum 65-foot wide perimeter buffer when the adjoining or adjacent property is not a Thoroughfare or is not vacant;
 - c. A minimum 32-foot wide perimeter buffer when the adjoining or adjacent property is vacant;
 - d. The critical root zone of any tree 10 inches or greater in DBH that is located within 50 feet of a Thoroughfare or within 65 feet of any non-vacant property boundary or roadway that is not a Thoroughfare.
 - e. The critical root zone of any tree 10 inches or greater in DBH that is located within 32 feet of a vacant property boundary.
2. Secondary tree conservation areas described in paragraphs 1.a. through 1.c. above must be at least 32 feet in all directions excluding external boundaries.
3. Where a slope or utility easement is required on a site adjacent to a

Thoroughfare, the width of secondary tree conservation areas required by paragraphs 1.a. through 1.c. above may be reduced by a half foot for each foot of easement width, but overall tree conservation requirement may not be reduced.

4. The critical root zone of a saved tree in paragraphs 1.d. or 1.e. above must be preserved in entirety even if it extends beyond 65 feet or 32 feet. When a landscape easement is obtained from the adjoining land that prohibits all tree disturbing activity, off-site areas for protected critical root zones may be included as tree conservation areas provided that such areas are not double counted as tree conservation areas.
5. As an alternative to paragraph 1.a. above, a secondary tree conservation area may be provided elsewhere on the property at 1.5 times the existing secondary tree conservation area on the property. The alternate area must be at least 4,000 square feet in size, may be combined with secondary areas 1.b. and 1.c., and have a minimum uniform width of 50 feet.
6. As an alternative to paragraphs 1.b. and 1.c. above, secondary tree conservation areas of undisturbed areas are allowed elsewhere on the site provided that the square footage of the substituted areas is at least 4,000 square feet. No portion of Zone 1 of Neuse River Riparian Buffers as established in Title 15A of the North Carolina Administrative Code, Subarticle 2B Section .0233 shall be designated an alternate undisturbed area.
7. As an alternate means of compliance with paragraphs 1.d. and 1.e. above, secondary tree conservation areas of individual trees 10 inches or greater in DBH and their critical root zones are allowed anywhere on the site that is not otherwise a tree conservation area provided that the critical root zone area in the alternate locations is not less than the critical root zone area that would have been required for priorities in paragraphs 1.d. and 1.e. above and that no alternate saved tree is less than 10 inches in DBH.

C. Excluded Areas

Tree conservation areas must exclude the following:

1. Sight triangles;
2. Slope easements;
3. Drainage easements;
4. Cross access easements;

5. Governmental and utility easements that prohibit trees;
6. Any easement that authorizes tree disturbing activities; and
7. Any area devoted or to be devoted to streets, future right-of-way reservation, sidewalks, driveways, walkways, storm drainage facilities, including without limitation, pipes, energy dissipaters and stormwater control measures which require the removal of vegetation.
8. Water-related activity areas located in, over, under or adjacent to a lake or natural watercourse, shown on the site plan may not be included as Zone 2 areas of Neuse River Riparian Buffers.
9. Any tree 10 inches DBH and larger that has 30% or more of its critical root zone traversed in part or in entirety by any of the excluded areas in paragraphs 1. through 7. above, or by any adjacent property.

D. General Conservation Area Requirements

1. Size

The minimum dimension of a primary tree conservation area is 20 feet.

2. Greenways

- a. City of Raleigh greenways may be included as tree conservation areas, provided that an area of 25 feet multiplied by the length of the greenway is excluded as tree conservation for trail construction.
- b. Greenways can only be established as tree conservation areas after establishment of primary tree conservation areas.

3. Tree Quality

No tree may be used to meet the requirements of this Article if it is unhealthy or a hazardous tree.

4. Heritage Trees

A heritage tree and its critical root zone may be established as an optional tree conservation area after establishment of priorities areas of Sec. 9.1.4.B.1.a. The area of critical root zone for a heritage tree conservation area shall be double credited toward the tree conservation requirement only when all of the following conditions are met:

- a. The critical root zone shall be protected in entirety by, either being entirely on the developing property, or, the property owner shall obtain

a landscape easement that prohibits all tree disturbing activity for the portion of the critical root zone on an adjacent property. The off-site area for protected critical root zone may be included as tree conservation area provided that such area shall not under any circumstances be counted as tree conservation area on both properties.

- b. Any portion of the critical root zone within another tree conservation area shall not be eligible for double credit.
- c. The condition of the heritage tree shall be a rating of “Good” or higher as determined by a certified arborist certified by the International Society of Arboriculture using the Guide for Plant Appraisal, latest edition, published by the International Society of Arboriculture, and verified by the Planning and Development Officer.
- d. A report of the tree condition shall be prepared on an evaluation form provided by the City and it shall be provided to the Planning and Development Officer.
- e. An active tree preservation plan prepared by a certified arborist, certified by the International Society of Arboriculture must be approved by the Planning and Development Officer, and implemented by the developer under the supervision of the certified arborist.

E. Tree Cover Required

1. Tree conservation areas proposed for -SHOD-1 and -SHOD-2 of primary priority areas **Sec. 9.1.4.A.1** and secondary priority areas **Sec. 9.1.4.B.1.a** through **Sec. 9.1.4.B.1.c**, and their alternates, must contain a basal area of at least 50 square feet per acre as measured in increments of 50 feet.
2. Any required protective yard for a -SHOD 1 or -SHOD-2 that does not contain a basal area of least 50 shall be planted in accordance with the overlay district landscaping standards, and portions of the protective yard cannot be established as a tree conservation area.
3. No tree, that is either unhealthy or a hazardous tree situated within the tree conservation area, or any tree 10 inches or greater DBH with any of its critical root zone situated outside of the tree conservation area on the developing side of the property, shall count for computing basal area.
4. For those developments that fulfill any of their tree conservation area requirement using a -SHOD-1 or -SHOD-2 protective yard or with secondary

tree conservation areas from **Sec. 9.1.4.B.1.a** through **Sec. 9.1.4.B.1.c**, and their alternates, the following must be submitted:

- a. Photo panoramic panels of the intended area to be conserved. The photo panel shall equal 50 feet of the length of the tree conservation area to be saved;
 - b. A tree cover report prepared by a North Carolina registered forester, or North Carolina licensed landscape architect, or Certified Arborist that, inventories each 50-foot length of proposed tree conservation area, to identify all eligible trees three inches DBH and larger, by species, DBH, with basal area calculations, and a determination of the general health of the tree stand; and
 - c. The most recent aerial photograph of the subject tract.
5. A survey of trees and computation of basal area may be substituted in lieu of **paragraphs 4.a. and 4.c. above**, provided that no dead, unhealthy, or hazardous tree is included in the survey.
 6. An optional method to determine basal area for tree conservation areas is allowed when a North Carolina registered forester certifies in writing that the basal area is 60 or greater, provided all the following conditions are met:
 - a. The contiguous tree conservation area that can consist of primary and secondary is at least 8,700 square feet in size, excluding easements, and consists of undisturbed wooded areas with a basal area of 60 or greater comprised of trees three inches DBH and larger;
 - b. All dimensions of tree conservation areas are at least 65 feet in all directions;
 - c. Land area that does not contain trees must be excluded unless it contains critical root zones of trees being preserved;
 - d. Any area of tree disturbing activity is excluded as a tree conservation area; and
 - e. A legible copy of the latest Wake County/City of Raleigh aerial photograph, must be included with the registered forester’s certification.
 7. Within each 50-foot linear increment of Zone 2 of Neuse River Riparian Buffers and greenway tree conservation areas that does not contain trees, a minimum of two shade trees to enhance the riparian buffer must be planted prior to issuance of certificate of occupancy. Planted shade trees must be at

least 10 gallon container size and free of circling roots at time of planting. If the area without trees will be used as shown on the approved site plan for either a tree disturbing activity allowed by [Sec. 9.1.6](#) or a water-related activity located in, over, under, or adjacent a lake or natural watercourse, no planting of new trees shall be required.

8. Within each 50 linear feet of watercourse buffer of the -MPOD that does not contain trees, a minimum of two, 10 gallon container size shade trees, free of circling roots, must be planted to enhance the riparian buffer prior to the issuance of a certificate of occupancy.
9. Alternatively, areas that do not contain trees in Neuse Zone 2, greenways, or -MPOD watercourse buffers may be established as permanently undisturbed primary tree conservation areas to allow natural regeneration of trees, provided such areas are not located on individual lots developed for single-unit living. Permanently undisturbed primary tree conservation areas shall not be cleared of any vegetation, or subjected to any tree disturbing activity, and shall be delineated with signs as specified by the City. Required signs must remain in place for a period of seven years. Unlawful disturbance of any permanently undisturbed primary tree conservation area shall subject the violator to a civil penalty of a minimum of \$1,000 plus 35 cents for every square foot of disturbed area, and, unlawfully disturbed areas shall be planted with twice the number of 10 gallon container shade trees as described above. Unlawful removal of any required signs shall subject the violator to a civil penalty of \$100 for each removed sign and each removed sign shall be replaced. Civil penalties shall be processed as set forth in [Sec. 10.4.2](#).

Sec. 9.1.5. Documentation of Tree Conservation Areas

A. Tree Conservation Permit Required

1. After the tree conservation areas have been determined and prior to any tree disturbing activity, a map with metes and bounds descriptions of all tree conservation areas must be given to the Planning and Development Department and a tree conservation permit must be obtained from the City, and tree protective fencing placed on the site.
2. After the tree conservation areas have been determined and a tree conservation permit has been obtained, and prior to or concurrent to any subdividing of the property and prior to issuance of a building permit,

the landowners shall record with the local County Register of Deeds the following:

- a. A plat with metes and bounds descriptions of all tree conservation areas;
- b. An easement that allows current and future lot owners access to otherwise inaccessible tree conservation areas to perform tree maintenance activities including required replacement plantings;
- c. A homeowners' association declaration prepared in conformity with N.C. Gen. Stat., Chapter 47F for the maintenance and protection of the trees within recorded tree conservation areas; and
- d. One or more deeds conveying all tree conservation areas in fee or in easement to the homeowners association.

B. Neuse River Riparian

1. Metes and bounds descriptions of Neuse River Riparian Zone 2 shall include only the outer boundary of Zone 2 with a notation that the inner boundary is 20 feet parallel to the outer boundary.
2. The outer boundary of Zone 2 may optionally be surveyed as a series of tangents that shall be no more than five feet from the actual Zone 2 boundary.
3. When the tangent survey is used, metes and bounds descriptions of the tangent lines and the actual outer boundary of Neuse River Riparian Zone 2 (without metes and bounds) shall be shown on the recorded plat. Tree disturbing activities are prohibited and unlawful in the area between the tangent Zone 2 boundary and the actual Zone 2 boundary to the same extent as tree disturbing activities are within Zone 2 areas, but these areas shall not count toward the percentage tree conservation requirements of [Sec. 9.1.4.B](#) as demonstrated to the Planning and Development Officer.

C. Secondary Conservation Areas

1. Where secondary tree conservation areas ([Sec. 9.1.4.B.1.a](#) through [Sec. 9.1.4.B.1.c](#)) abut one another, metes and bounds descriptions shall not be required for the boundary line between abutting tree conservation areas.
2. Previously recorded tree conservation areas and greenways may be shown without metes and bounds provided that the correct Book of Maps is referenced, and greenways are re-recorded as greenway tree conservation areas.

D. Replacement by Condemnor

Whenever any condemnor acquires property through eminent domain it shall be the responsibility of the condemnor to replace, in accordance with the provisions of this UDO, those complying elements which were removed unless a less stringent standard is required.

E. Payment In Lieu of Compliance

1. Requests for fee-in-lieu payments will be considered for cases of hardship described in but not limited to the following:
 - a. Hardships caused by man-made or natural topography that would require use of a retaining wall where the cost of wall construction would be greater than the fee-in-lieu for the area being relieved from compliance. In such cases, justification must be provided to demonstrate there are no alternate methods of construction other than use of a retaining wall. Quotes from three independent design firms or contractors must be provided to estimate the construction cost of the retaining wall.
 - b. Hardships where the existence of trees and protection of their critical root zones render a site undevelopable.
2. General conditions for all fee-in-lieu requests:
 - a. No primary tree conservation area is eligible for a fee-in-lieu payment.
 - b. Fee-in-lieu payments for tree conservation area will not be considered when the objective is to develop the site without regard for the tree conservation priorities of [Sec. 9.1.4](#).
 - c. Fee-in-lieu payments for tree conservation area will not be considered when the objective is to achieve increased site visibility at the expense of tree protection.
 - d. Prior to requesting a monetary payment in lieu of compliance, the applicant must examine alternate methods to preserve the required tree conservation priority areas. Upon submittal of a fee-in-lieu request, the applicant must provide proof of consideration of alternatives and justification why the alternatives are not feasible. The City may require that additional alternate methods be examined.
 - e. Alternative methods to preserve tree conservation areas include but are not limited to: re-design of the subdivision or site plan, use of retaining

walls, alternate methods of construction (such as trex decking in place of concrete sidewalk), and arboricultural practices which include active tree preservation (such as root pruning of no more than 30% of the root zone with active tree preservation aftercare) performed under supervision of a certified arborist.

- f. Secondary tree conservation areas for Thoroughfares approved for fee-in-lieu payment shall be paid at a rate of 1.5 times the tax value of the land.
- g. Secondary tree conservation areas other than Thoroughfare areas approved for fee-in-lieu payment shall be paid at a rate equal to the tax value of the land.
- h. All fee-in-lieu payments shall be adjusted on an annual basis by the "All Items" December through December percent change for each year following the most recent property tax valuation.
3. All collected monies, including any income derived from such monies, shall be spent either for acquisition of lands where trees will be preserved or for tree planting. The City Council shall set forth specific eligible activities for tree preservation and tree plantings. All collected monies must be spent within the same open space fee zones from which the payments were collected.

F. Administrative Alternate Findings

The Planning and Development Officer may in accordance with [Sec. 10.2.17](#) approve an alternate tree conservation requirement, subject to the following findings:

1. The approved alternate meets the intent of the tree conservation regulations.
2. The approved alternate complies with the Comprehensive Plan and adopted City plans.
3. The approved alternate is considered equal or better to the standard.

Sec. 9.1.6. Permitted Tree Disturbing Activities

No tree disturbing activity shall take place in designated tree conservation areas except in conformity with the following:

- A. Within Zone 2 of Neuse River Riparian Buffers and in watercourse buffers in a -MPOD, permitted tree disturbing activities are allowed for:

1. Any work that is ancillary to activities allowed by the North Carolina Division of Water Quality in Zone 1;
 2. Any sanitary sewer installation when an existing permanent structure or any part of an existing permanent structure that is to remain on the site is within the width of the proposed permanent and temporary construction sanitary sewer easement plus 10 feet; and
 3. More than 50% of a reach of sanitary sewer main will be over 12 feet deep.
- B. Within primary tree conservation areas and secondary tree conservation areas tree disturbing activities are allowed when all of the following are met:
1. A tree conservation permit is obtained from the Planning and Development Officer. Tree conservation permits may be issued for one or more of the following:
 - a. A certified arborist, registered forester, or a licensed landscape architect certifies to the City in writing that the tree is either unsafe or is unhealthy. No certification is required if it can be shown that the tree died of natural causes and the dead tree is replaced in accordance with the replacement standards of this Article.
 - b. Tree removal or grading is being done to remove a visual obstruction from a sight triangle as set forth in the North Carolina Department of Transportation's Policy on Street and Driveway Access to North Carolina Highways Manual, and all subsequent amendments;
 - c. The removal or grading is being done to install public improvements made pursuant to this UDO;
 - d. Where existing vegetation meets the minimum applicable tree conservation requirements for an applicable district, or meets applicable transitional yard requirements, a tree conservation permit may be issued for wooded area clean-up of shade trees less than two inches DBH and understory trees less than one inch in DBH.
 - e. No permit for such removal may be issued until a plan is submitted showing the nature and extent of all tree work, how the work will be undertaken without compacting soils and damaging preserved trees and maintaining minimum applicable requirements.
 2. When a tree conservation permit is issued in accordance with Sec. 9.1.5, the property owner must install replacement trees for any tree situated within the limits of the tree disturbing activities in one of the following ways:
 - a. One or more undisturbed areas of equal size containing vegetation similar in size and quantity as that which is being removed is preserved either outside the protective yard, between the principal building and the roadway for priority areas in Sec. 9.1.4.B.1a, or is preserved in alternate undisturbed areas meeting the requirements of Sec. 9.1.4.B. through Sec. 9.1.4.E. for priority areas Sec. 9.1.4.B.1b and Sec. 10.1.4.B.1c.; or
 - b. For each 200 square feet of tree disturbed land area, a two-inch caliper tree is either planted between the principal building and the roadway or is planted in approved alternate areas of the site; or
 - c. Whenever a tree of priority areas Sec. 9.1.4.B.1d and Sec. 9.1.4.B.1e is removed after being certified as a hazardous tree, unhealthy, or dead; it shall be replaced with 10 caliper inches of new shade trees. Any replacement tree shall be planted within the tree conservation area previously recorded for the removed tree. The minimum size of any replacement tree shall be two caliper inches.
 - d. All substituted natural areas and newly planted areas must be designated as tree conservation areas on plats with metes and bounds descriptions recorded with the Wake County Register of Deeds.
 3. All portions of critical root zones of trees situated inside a designated tree conservation area that adjoin proposed tree disturbing activities shall remain undisturbed areas for trees with 10 inches or greater DBH.
 4. Prior to commencing any tree disturbing activity, the boundaries of such activities shall be delineated by a protective fence in the field.

Sec. 9.1.7. Penalties

- A. A violation of this Article, where unlawful tree disturbing activity has occurred and trees and stumps are absent, shall subject the violator to a civil penalty of a minimum of \$1,000 for the first tree plus 35 cents of every foot of unlawful tree disturbing activity.
- B. Where trees or stumps are present after unlawful tree disturbing activity has occurred, the civil penalty shall instead be calculated as \$1,000 for the first tree plus \$100 per diameter inch for any other tree or stump three inches diameter and larger. Civil penalties shall be processed as set forth in Sec. 10.4.2.

Sec. 9.1.8. Restoration

- A. In addition to the civil penalty of Sec. 9.1.7, the owner of real property, where a violation has occurred, shall remove each unlawfully disturbed tree and replace with a tree or trees of equal caliper.
- B. Prior to any replanting, the Planning and Development Officer shall first approve a replacement planting and maintenance plan. Replacement trees shall be two inches in caliper, and no replacement tree shall be located in those portions of a tree conservation area with a basal area of over 80 square feet per acre.
- C. All replacement trees shall be planted in a planting area of at least 200 square feet in area with minimum dimensions of eight feet.
- D. If the tree conservation area where the violation has occurred fails to contain sufficient land area to replant the required replacement trees and replacement trees can not be planted on other portions of the property, then in lieu of such replacement trees, a replacement fee equal to \$100 per caliper inch of replacement trees shall be paid to the City.

Sec. 9.1.9. Watershed Protection Overlay Districts

- A. Except as otherwise provided below, every lot located within a -UWPOD, -FWPOD or -SWPOD must provide and maintain an area set aside for trees equal to at least 40% of the lot area. Within this area, trees must either be preserved or planted in accordance with the following.
 - 1. Tree areas may be one contiguous area or scattered areas throughout the lot, but no required tree area may be less than one-fifth of the total gross land area required to be set aside for trees;
 - 2. All areas required to be set aside for trees shall be maintained as wooded areas;
 - 3. Wooded areas may consist of either areas where active tree preservation is observed or tree planting areas;
 - 4. Each active tree preservation area must contain a minimum of two inches of tree caliper per every 100 square feet, and within such areas, active tree preservation, shall be followed;
 - 5. Areas that are set aside for trees that do not meet the standards for active tree protection areas must be planted with shade trees; and
 - 6. The minimum size and planting rate of new tree plantings used to fulfill this requirement shall be either one bare-root seedling at least 14 inches tall planted per 100 square feet (10 feet by 10 feet centers), or, one two inch caliper tree measured planted per 200 square feet.

- B. After wooded areas have been determined, and prior to or concurrent to any subdividing of the property or issuance of building permit, the landowner shall record with the local County Register of Deeds a plat with metes and bounds descriptions of all wooded areas.
- C. For lots located within areas designated "New Urban" by the Swift Creek Land Management Plan, the regulations of paragraph A. above apply with the exception that only 25% of each lot must contain an area set aside for trees.
- D. For lots located within a conservation development, areas set aside for trees may in lieu of being situated on the individual dwelling lots may instead be located within the required open space, provided that, the overall acreage set aside for trees is not diminished.
- E. The requirements of this section do not apply to lots devoted exclusively to stormwater control measures or to those lots located in those areas of the Comprehensive Plan designated for impervious surfaces in excess of 30%.

Sec. 9.1.10. Lots Without Recorded Tree Conservation Areas

A. Applicability

- 1. Any tree disturbing activity, except a minor tree removal activity, on sites two acres and larger in size that do not have an established or recorded tree conservation area shall meet the requirements of this section.
- 2. Nothing in this section shall prevent the otherwise lawful grading and installation of streets, utilities or other improvements shown on an approved subdivision plan or site plan.
- 3. All applicable laws, including soil erosion and sedimentation control and tree protection regulations, must be obeyed. No champion tree, including its critical root zone, is subjected to any tree disturbing activity.

B. Tree Protection Plan Required

- 1. A tree protection plan must be approved by the Planning and Development Officer for all applicable tree protected areas.
- 2. Tree protection fences must be in place prior to the issuance of any City permit and prior to engaging in any tree disturbing activity.

C. Perimeter Buffers

- 1. No tree disturbing activity, except a minor tree removal activity, shall occur within a 32-foot wide perimeter buffer when the adjoining or adjacent property is vacant.

2. No tree disturbing activity, except a minor tree removal activity, shall occur within a 65-foot wide perimeter buffer when the adjacent property is a roadway, other than a Thoroughfare or is not vacant.
3. No tree disturbing activity, except a minor tree removal activity, shall occur within a 50-foot wide perimeter buffer when the adjoining or adjacent property is a Thoroughfare or higher designation roadway.
4. No trees 10 inches DBH or larger can be removed, with the exception that a maximum of five trees between 10 inches and 22 inches DBH may be removed within the 32-foot wide buffer, the 65-foot wide buffer or 50-foot wide Thoroughfare buffer, within a continuous five-year period, with a permit issued by the Planning and Development Officer, provided that such tree removal would not diminish future tree conservation areas that may be required, all as shown on a report submitted to the Planning and Development Department.
5. In lieu of protecting perimeter buffers, tree conservation areas may be designated in conjunction with an approved development plan, or an approved forest management plan, provided that all tree conservation areas are shown on recorded plats.

D. Forest Management Activity Allowed

1. Forest management activity is allowed in the perimeter buffers provided that the landowners first record with the local County Register of Deeds a covenant running with and binding the land stating: "That forest management operations were initiated within regulated perimeter buffers of the real property on _____ (date and year), and that pursuant to State Law, no building permit, site plan, or subdivision plan will be approved by the local governing authority for a period of five years following harvesting."
2. A copy of this covenant recorded with the local County Register of Deeds shall be provided to the to the Planning and Development Department.
3. The allowable hours of operation any given day are between 7 AM and 8:30 PM, other than emergency work for the preservation of public health or safety.
4. Access ways through perimeter buffers shall not exceed 25 feet in width, and all construction entrances of the access ways must be constructed in accordance with the latest City "Guidelines for Land-Disturbing Activities" or

latest State of North Carolina "Erosion and Sediment Control Planning and Design Manual", whichever is more stringent.

5. At least one access way shall be permitted, and additional access ways may be allowed provided such additional access ways are justified by a North Carolina registered forester and additional access ways fronting the same roadway are spaced at least 1,000 feet apart.

E. Violations

1. A violation of this section, where unlawful tree disturbing activity has occurred and trees and stumps are absent, shall subject the violator to a civil penalty equal to \$1,000 for the first tree plus 35 cents of every square foot of unlawfully disturbed perimeter buffer.
2. Where trees or stumps are present after unlawful tree disturbing activity has occurred, the civil penalty shall instead be calculated as \$1,000 for the first tree plus \$100 per diameter inch for any other tree or stump three inches diameter and larger.
3. No civil penalty shall exceed one-third of the current land tax value of the entire site.
4. The penalty shall be processed as set forth in **Sec. 10.4.2**. In addition to this civil penalty, within the unlawfully disturbed perimeter buffer, the land owner shall install one two-inch caliper tree for each 200 square feet of all of the unlawfully disturbed perimeter buffer; provided that, in R-1 and R-2 no more than 15% of the acreage of the entire tract and no more 10% of the acreage of the entire tract of all other districts.
5. Prior to any replanting, the Planning and Development Officer shall first approve a replacement planting and maintenance plan.
6. The replanting areas shall be designated as tree conservation areas on plats with delineated metes and bounds descriptions recorded with the local County Register of Deeds, however, the replacement planting areas shall not count toward the tree conservation percentage requirements of **Sec. 9.1.4.B.1.a**. Following the recording of this plat, no tree disturbing activity shall take place within the designated tree conservation areas.

Article 9.2. Stormwater Management

Sec. 9.2.1. General Provisions

A. Applicability

Prior to any land disturbing activity or subdivision of land, stormwater control measures, watercourse buffers, or both must be provided in conformity with the requirements of this Article.

B. Manual and Guidelines Incorporated

The Raleigh Stormwater Control and Watercourse Buffer Manual along with the Guidelines for Land Disturbing Activities, and amendments, on file in the City Clerk's Office, is adopted by reference as part of this UDO.

Sec. 9.2.2. Active Stormwater Control Measures

A. Exemptions

The following uses are exempt from the active stormwater control requirements of this section:

1. Any detached house used for single-unit living or any attached house used for two-unit living, built as part of a subdivision one acre or less in aggregate size;
2. Any plot plan or site plan of one-half acre or less in aggregate size that contains less than 12,000 square feet of impervious surface, including impervious surfaces of related on-site or off-site facilities;
3. Any land-disturbing activity that does not require a land-disturbing permit under [Sec. 10.4.6](#) provided that, upon application of any impervious surfaces this exemption shall not apply;
4. Substitution of impervious surfaces when all the standards of [Sec. 10.3.5.A](#) are met; and
5. Substitution of impervious surfaces with approved pervious surfaces.

B. Nitrogen Reduction

1. Requirement

- a. Any new or expansion of existing development, not in compliance with the stormwater control master plan approved for its drainage basin, may not contribute a nitrogen export load exceeding 3.6 pounds per acre per year.
- b. Compliance with stormwater control master plan must include the installation within the development of all stormwater control measures shown on the stormwater control master plan, payment of fees in lieu of installation, when allowed by the City, and payment of any applicable drainage fees.

2. Payment In Lieu Option

The nitrogen export load limitations for a development may be off-set through a payment made to the North Carolina Riparian Buffer Restoration Fund. The payment shall be based on the latest fee adopted by the State and shall meet the following requirements.

a. In General

- i. Installation of City-approved stormwater control measures or payment in lieu option or a combination of both may be used to satisfy the nitrogen load requirement.
- ii. For subdivisions with an approved unified off-site stormwater control facilities plan, all payments shall be made prior to issuance of a land disturbance permit. Where no land disturbance permit is required, fees shall be due prior to recording of the plat.
- iii. For all other developments, payments shall be paid to the North Carolina Riparian Buffer Restoration Fund prior to the issuance of applicable development permits.

b. Residential Development

- i. For any detached house used for single-unit living or any attached house used for two-unit living, a one-time offset payment may be paid to the North Carolina Riparian Buffer Restoration Fund to reduce the nitrogen export load of up to six pounds per acre per year to 3.6 pounds per acre per year.

- ii. All residential development that exceeds nitrogen export loads of six pounds per acre per year must install City-approved stormwater control measures to reduce the nitrogen export load of their development to six pounds per acre per year limitation to become eligible for the payment in lieu option.

c. Mixed Use and Nonresidential Development

- i. For mixed use and nonresidential development, a one-time offset payment may be paid to the North Carolina Riparian Buffer Restoration Fund to reduce the nitrogen export load of up to 10 pounds per acre per year to 3.6 pounds per acre per year.
- ii. Mixed use and nonresidential development that exceeds nitrogen export loads of 10 pounds per acre per year must install City-approved stormwater control measures to reduce the nitrogen export load of their development to 10 pounds per acre per year limitation to become eligible for the payment in lieu option.

C. Stormwater Control Permits

1. No development, expansion of existing development, or the placement of more than 12,000 square feet of any impervious surface, may occur on a site without a stormwater control permit from the Office of Development Services.
2. No stormwater control permit may be issued until a stormwater control plan is first approved by the City in accordance with **Sec. 9.2.2.D.**
3. No stormwater control permit may be issued except in strict conformity with the provisions of this Article, the Raleigh Stormwater Control and Watercourse Buffer Manual.
4. No stormwater control permit may be issued until the boundaries of any watercourse buffer, riparian surface water buffer, or transitional protective yard in a -MPOD, -UWPOD, -FWPOD or -SWPOD, or CM District, and permanently protected undisturbed open space areas which are adjacent to or encompass a work site are clearly and accurately demarcated by a protective fence in the field. Protection measures must be field verified by a Professional Land Surveyor.

D. Stormwater Control Plans

1. General Requirements

- a. Stormwater control plans must be prepared by a qualified registered North Carolina professional engineer, surveyor, or landscape architect.
- b. All parts of a stormwater control plan, including data calculation design and installation of storm control measures and devices shall be in compliance with the Raleigh Stormwater Control and Watercourse Buffer Manual.
- c. Stormwater control plans must show how nitrogen reduction and stormwater runoff control requirements are being met and how watercourse buffers are being protected.
- d. A surety equal to 125% of the cost of construction of a stormwater device shall be paid to the City prior to permit issuance. If the amount of impervious surfaces for the bonded area exceeds 15% , the City may cash the surety.

2. Maintenance Manual and Budget

- a. The stormwater control plan must be accompanied by a stormwater operations maintenance manual and budget.
- b. Prior to either grading any portion of the development or submitting construction drawing plans of any applicable stormwater control facility to the City, whichever event first occurs, a stormwater operations maintenance and budget shall be submitted to the Stormwater Utility Division of the Public Works Department.
- c. The maintenance manual shall contain a narrative describing each installed measure and device and its design specifications.
- d. The maintenance manual shall describe which lots are served by each device.
- e. The maintenance manual shall indicate for each installed measure and device what operation and maintenance actions are needed and what specific quantitative criteria will be used to determine when these actions will be taken.
- f. The maintenance manual must indicate the steps that will be taken to restore a measure or device to the design specifications if a failure occurs.

- g. The maintenance manual must contain a statement about the expected life of each stormwater control facility, and a replacement schedule derived by dividing the initial construction cost of each stormwater control facility by the expected life of that stormwater control facility.
- h. The budget shall include annual costs such as routine maintenance, repair, periodic sediment removal and replenishment of rip-rap, insurance premiums associated with the stormwater control facilities, taxes levied against the stormwater control facilities, mowing and reseeding, required inspections.

3. As-Built Plans and Certification

Stormwater control plans must be accompanied by as-built plans certified under seal, that the stormwater measures and devices and their installation are in compliance with the Raleigh Stormwater Control and Watercourse Buffer Manual and the City-approved or modified stormwater control plan. No certificate of compliance or occupancy may be issued by the Office of Development Services without as-built plans. At a minimum, the as-built plans must contain the following information:

- a. The name and address of the land owner;
- b. The recorded book and page number of the lot of each required stormwater control facility and required open space area;
- c. A statement that all inspected stormwater control facilities and open space areas are in compliance with the approved stormwater control plan, the applicable maintenance manual required and the Raleigh Stormwater Control and Watercourse Buffer Manual.
- d. The original signature and seal of the engineer, surveyor, or landscape architect.

E. Stormwater Runoff Controls

1. Runoff Limitation

- a. After May 1, 2001, the peak stormwater runoff leaving any site for the two-year and 10-year storms shall be no greater for post-development conditions than pre-development conditions. The same methodologies used to calculate stormwater runoff must be used for both pre-development and post-development conditions.

- b. For any land disturbing activity on sites between five and 15 acres in size the peak stormwater runoff leaving the site at each discharge point for the two-year storm and 10-year storm shall be no greater during construction than for pre-development conditions. For any land disturbing activity on sites, greater than 15 acres in size the peak stormwater runoff leaving the site at each discharge point for the two-year storm, 10-year storm, and 25-year storm shall be no greater during construction than for pre-development conditions. However, this regulation shall not be applicable when the development site conforms to all of the following:
 - i. The disturbed acreage is less than five acres;
 - ii. The two-year peak discharge for the disturbed condition, for all points of discharge, is less than 10% of the peak discharge from the contributing watershed as measured at the nearest receiving watercourse.

2. Exemptions

The stormwater runoff control requirements do not apply to sites with any of the following conditions.

- a. The development complies with the stormwater control master plan approved for its drainage basin.
- b. The increase in peak stormwater runoff between pre-development and post-development conditions for the two-year and 10-year and 25-year storms is 10% or less at each point of discharge.
- c. The maximum impervious surface coverage of the lot, including any existing impervious surfaces, is no more than 15% and the remaining pervious portions of the lot are utilized to convey and control the stormwater runoff of the lot to the maximum extent practical. In the event that the site is subsequently subdivided, reduced by recombination or the impervious surface is equal to or exceeds 15% the site may no longer be exempt.
- d. Compliance with **paragraph E.1. above**, would result in greater adverse downstream impact, such as local flooding, as determined by City-approved engineering studies.
- e. Compliance with the 10-year storm and 25-year storm runoff limitations in **paragraph b. above** results in no benefit to current and future

downstream development, as determined by City-approved engineering studies.

3. Additional Runoff Controls

The City may require the installation of stormwater runoff control measures for projects without any stormwater measures present. The City reserves the right to require additional stormwater runoff control measures for projects which are compliant with paragraph E.1. above, if stormwater runoff from the site will could cause adverse effects on other properties including, without limitation, public streets, greenways and utility easements.

- a. As part of an application for rezoning, subdivision, or site plan for sites at or upstream of documented structural flooding cases, the applicant shall submit a stormwater impact analysis to the Public Works Director.
- b. This requirement does not extend to sites initially zoned and added to the territorial coverage of as a result of annexation, extraterritorial jurisdictional expansion or otherwise or application of any overlay district.
- c. The stormwater impact analysis shall look at the flood level differences between pre-development and post-development conditions for the 25-, 50- and 100-year storm events. If the analysis shows an increase greater than 0.04 feet between pre-development and post-development flood levels at the site of structural flooding then mitigation to pre-development flood conditions will be required to prevent further damage to the affected property.
- d. In the case where the area of the subject property is less than five percent of the drainage area, measured to the location of the documented structural flooding, then this analysis shall not be required.
- e. In the event flood levels are increased, then the affected property owners will be notified in writing of any increase by the applicant.

F. Preservation of Open Space Areas

1. Open Space Areas Preserved

- a. Areas designated on approved stormwater control plans as open space to be used for complying with this Article shall be preserved and protected.

- b. The only activities allowed in designated open space areas are those activities allowed by the approved stormwater control plan or allowed in riparian surface water buffers under Title 15A North Carolina Administrative Code Article 2B, section .0233, as amended from time to time. Determinations required by the North Carolina Administrative Code shall be made by the City.
- c. No work in open space areas shall proceed without a written watercourse buffer permit from the Public Works Director.
- d. Permanently protected undisturbed open space areas identified on stormwater control plans shall be recorded as open space areas on plats recorded with the County Register of Deeds, and clearly delineated with a fence.

2. Exchange of Open Space Areas

Open space areas may not be subdivided or conveyed by the owner. However, nothing in this section shall prevent the mortgaging and hypothecating of open space areas; provided, the mortgage applies to all portions of the tract and not just the open space areas, the mortgagee is informed that the open space areas is used for complying with the requirements of the Article, and the rights of the mortgagee are subordinated to the rights of any property owner association and its members. Furthermore, nothing shall prevent the exchanging of open space areas for other properties when all of the following are met:

- a. If the open space area is owned by a homeowners association, written notice of the exchange is given to each member of the association except in cases where the exchange is done to eliminate an encroachment;
- b. After the notice is given, if required, the owner of the open space area approves the exchange;
- c. The exchanged properties and other considerations are of like value and utility;
- d. The acreage and configuration of the remaining open space area including real property to be received in such exchange equal or exceeds the requirements of the City Code; and
- e. The exchange is approved by the Public Works Director.

G. Maintenance of Stormwater Control Measures and Devices

1. General Requirements

- a. The land owner or person in possession or control of the land shall maintain all on-site stormwater control facilities and all open space areas required by the approved stormwater control plan unless those facilities and open space areas are accepted for maintenance by a governmental agency.
- b. The land owner entitled to the exclusive use of an off-site drainage easement for one or more stormwater control facilities not accepted for maintenance by a governmental agency shall maintain said stormwater control facilities.

2. Maintenance Covenant

For off-site stormwater control facilities and for all other stormwater control facilities which serve more than one lot that are not accepted for maintenance by a governmental agency, the developer shall execute and record with the local county register of deeds office a maintenance covenant, using a City form, with the following contents:

a. Location of Stormwater Control Facilities and Drainage Easements

- i. A description of portions of property where stormwater control facilities are located as well as a description of the location of all private drainage easements conveying stormwater to and from the development to the facilities.
- ii. A process for relocating private drainage easements, with any relocation to require the prior written consent of the City.

b. Easement Rights of Lot Owners

- i. A statement that owners of properties that will be served by the stormwater control facilities are:
 - a) Granted perpetual, irrevocable and non-exclusive easement rights and privileges to use, construct, install, inspect, replace, reconstruct, repair and maintain those stormwater control facilities including the right to access those stormwater control facilities, private drainage easements and other portions of the

development as reasonably necessary to perform the granted easement rights; and

- b) The granting of perpetual, irrevocable and non-exclusive easement rights and privileges to transport, store, and discharge stormwater to and from the stormwater control facilities.

c. City Easement/Right of Entry/No City Responsibility

- i. A grant, from the developer, the association (if any) and the lot owners to the City of a permanent non-exclusive irrevocable easement over the lots, stormwater control facilities and private drainage easements for inspection, maintenance, repair, construction, installation, re-construction, replacement and other work on, in, and over the stormwater control facilities.
- ii. A grant, from the developer, the association (if any), and the lot owners to the City of a permanent, irrevocable, nonexclusive right of ingress, egress, and regress over and across all public or private easements on the property and through all access easements benefitting the developer, association (if any) and the lot owners through any adjacent properties, including but not limited to private roads, for inspection, maintenance, repair construction, installation, reconstruction, replacement and other work on the stormwater control facilities. The rights granted to the City shall include employees, agents, and contractors of the City of Raleigh. The grant of these rights does not obligate the City to exercise them or to take any other action.

d. Stormwater Operations and Maintenance Manual and Budget

A stormwater operations and maintenance manual and budget conforming to **Sec. 9.2.2.D.2** shall be attached to and incorporated into the maintenance covenant as an exhibit.

e. Insurance

The party responsible for maintenance of the stormwater control facilities shall, as part of the routine costs and expenses of maintaining any stormwater control facility, procure and maintain in full force and effect liability insurance in an amount not less than \$1,000,000 of coverage.

f. Standards of Maintenance for Stormwater Control Facilities

A statement that stormwater control facilities shall be maintained in accordance with the attached stormwater operations and maintenance manual and budget, and at all times, the stormwater control facilities shall comply with all applicable laws, ordinances, regulations, rules and directives of governmental authorities, and that the stormwater control facilities shall perform as designed.

g. Responsibility for Stormwater Control Maintenance

- i. A statement that the property owners' association, or a designated commercial lot owner, shall be responsible for all stormwater control facilities in accordance with the attached stormwater operations and maintenance manual and budget.
- ii. A statement that the failure to maintain any stormwater control facility in accordance with the terms of the maintenance covenant and this UDO is a violation of the City Code, potentially subjecting each lot owner subject to the maintenance covenant to significant daily civil penalties and other enforcement actions.

h. Stormwater Control Facilities Maintained by an Association

- i. If a property owners' association is delegated maintenance responsibilities for the stormwater control facilities, then membership into the association shall be mandatory for the owner of each parcel served by the facility, such membership shall be appurtenant to the parcel and shall run with ownership of the parcel.
- ii. The property owners' association shall have the power to levy assessments for the operation and maintenance of the stormwater control facilities and all unpaid assessments levied by the association shall become a lien on the individual parcel.
- iii. The calculation of the assessment charge shall be set forth in a subsequent recorded document.
- iv. Any property owners' association responsible for maintenance of stormwater control facilities shall be established in accordance with N.C. Gen. Stat., Chapter 47C and Chapter 47F and the property owners' association declaration (or equivalent) shall conform to all applicable provisions of the City Code.

- v. The common expenses of the property owners' association shall include, without limitation, costs and expenses for operation and maintenance of stormwater control facilities, all costs for insurance premiums and any other costs listed in the stormwater operations maintenance manual and budget.

i. Stormwater Control Facilities Maintained by a Commercial Lot Owner

- i. If a commercial lot owner is responsible for the maintenance of the stormwater control facilities, said owner is responsible for making all repairs and replacements of the stormwater control facilities in accordance with the construction drawings approved by the City.
- ii. Each owner of a parcel served by the stormwater control facility shall be subject to an assessment charge levied by the designated responsible lot owner.
- iii. The assessment charge shall include, without limitation, the actual costs for repairing and maintaining the stormwater control facility, all costs for insurance premiums associated with the stormwater control facility, all costs of required inspections of the stormwater control facility, and any other costs listed in the stormwater operations maintenance manual and budget.
- iv. The calculation of the assessment charge shall be set forth in a subsequent recorded document.
- v. Any assessment charge levied against a lot and remaining unpaid for a period of 30 days after the payment due date shall be delinquent and shall constitute a default of this covenant entitling the lot owner responsible for maintenance of the stormwater control facilities to bring an action at law against the defaulting party plus interest charges, together with all costs and expenses of collection incurred, including, without limitation, court costs and reasonable attorney fees actually incurred.
- vi. Each parcel owner served by the stormwater control facility shall have the right to maintain, repair and replace the facility if, after 45 days written notice, the commercial lot owner responsible for maintenance, repair and replacement fails to faithfully discharge its responsibility.

- vii. The parcel owner performing any maintenance or repair of the facility shall have the same rights as the designated commercial lot owner to assess all other parcels served by the stormwater control facility.
- viii. At any time, the commercial lot owner responsible for the maintenance of stormwater control facility may assign its responsibilities and rights to a property owners' association established in accordance with N.C. Gen. Stat., Chapter 47C and Chapter 47F. In such instance, the owners of the parcels served by the stormwater control facility shall be members of the property owners' association.

j. City Right to Maintain and Repair Stormwater Control Facilities and City's Right of Reimbursement

- i. If the stormwater control facilities are not performing adequately or as intended or are not properly maintained or replaced, the City, in its sole discretion, may, after written notice sent to the lot owners and any association, enter the development and perform such construction, installation, repair, reconstruction, replacement and maintenance of the stormwater control facilities as is necessary to remedy the situation.
- ii. If the City undertakes the activities listed above, the City shall be fully reimbursed for its costs of inspecting, monitoring, designing, constructing, repairing, reconstructing, replacing and/or installing the stormwater control facility or facilities. Such costs shall include the City's costs of administration, overhead, contracting and public advertising.
- iii. In addition to any other rights the City has to be reimbursed for its costs, the City may levy an assessment against each lot served by the noncompliant stormwater control facility. No assessment will be levied by the City without prior notice to affected lot owners. Any unpaid assessment levied by the City shall be, as allowed by law, a lien against the delinquent lot.

k. City's Right To Private Assessments

- i. In addition to all of the remedies set forth herein, if the City has not been fully repaid for the work the City performed on any stormwater

control facility owned, in fee or easement, by either a property owners' association or a commercial lot owner with the power to assess lot owners for maintenance of the stormwater control facility, the property owners' association and the private commercial lot owner shall assign to the City their right to receive common expense assessments, including stormwater assessments.

- ii. The association and private commercial lot owner shall designate and appoint the City as attorney in fact for the expressed and limited purpose of assessing and pursuing collection of such unpaid reimbursement owed to the City.
- iii. No assignment of assessment rights shall become effective without 60 days prior written notice to the applicable private commercial lot owner, property owners' association and its members.

l. Action for Specific Performance

- i. That, recognizing the consequences to the City of noncompliance with the obligations of the maintenance covenant, the City shall have the right to seek, in any court of appropriate jurisdiction, judicial action for specific performance of any of the obligations, and remedies established in this maintenance covenant.
- ii. The rights of the City within the maintenance covenant shall not limit any other remedies or enforcement options available to the City under the maintenance covenant, the City Code or State law.

m. No Public Adoption

- i. A statement that the City's exercise of its rights under this maintenance covenant, its abatement of public nuisance, or its repair of unsafe structures shall not constitute adoption of any stormwater control facility by the City.
- ii. A statement that the legal authority of the City is not intended to impede or prohibit the property owners' association or lot owners from taking all necessary actions to inspect, maintain, repair, replace, and reconstruct stormwater control facilities so that they function safely, perform the function for which they were created, and comply with the provisions of this maintenance covenant and the City Code.

n. City's Right of Non-Action

A statement that the maintenance covenant shall not obligate the City to monitor, maintain, repair, reconstruct, install, or replace any stormwater control facility or measure, and that the City shall not be liable for the condition or operation of stormwater control facilities.

o. Governmental Functions; Superseding Regulations

- i. A statement that nothing contained in the maintenance covenant shall be deemed or construed to, in any way, stop, diminish, limit, or impair the City from exercising or performing any regulatory, policing, legislative, governmental, or other powers or functions.
- ii. A statement that the maintenance covenant shall not restrict or prevent the application of later adopted ordinances or other enactments which may supplement or supersede the provisions of the maintenance covenant.

p. Joint and Several Liability

- i. A statement that each lot owner served by one or more stormwater control facilities is jointly or severally responsible for repairs, replacement and maintenance of the stormwater control facilities, including payment of any unpaid ad valorem taxes, public assessments for improvements, and unsafe building and public nuisance abatement liens charged against the stormwater control facility and/or the lots served by the facility, including all interest charges thereon, together with all cost and expenses of collection incurred, such as, without limitation, court costs and attorney's fees incurred.
- ii. The maintenance covenant shall establish a right of contribution in favor of each owner who pays more than the owner's pro rata share of costs and expenses against all other owners whose real property is served by the same stormwater control facility.
- iii. A statement that pro rata sharing may be established either by maintenance assessment provisions for stormwater control facilities in subsequently recorded documents or by dividing the acreage of such owner's portion of the real property served by the stormwater control facilities by the total acreage of the portion of the

development served by the same stormwater control facility when no maintenance assessment covenants apply to the property.

- iv. A statement that failure to maintain the stormwater control facilities in accordance with the terms of the maintenance covenant and the City Code is a violation of the City Code potentially subjecting each parcel owner subject to the maintenance covenant to significant daily civil penalties and other enforcement actions.

q. Permanently Protected Undisturbed Open Space Areas

A statement that within permanently protected undisturbed open space areas and permanently preserved undisturbed open space areas there shall be no land-disturbing activity, no tree disturbing activity, no placement of impervious surface, no removal of vegetation, no encroachment, or no construction or erection of any structure shall occur except in accordance with a watercourse buffer permit first being issued by the City.

r. Severability

The sections, paragraphs, sentences, clauses and phrase of the maintenance covenant are severable, and if any phrase, clause, sentence, paragraph or section of the maintenance covenant is declared invalid by a valid judgment, order or decree of any court of competent jurisdiction, such invalidity shall not affect the remaining phrases, clauses, sentences, paragraphs and sections of the maintenance covenant.

s. Completion and Recording of Maintenance Covenant Form

- i. The maintenance covenant shall be binding on all current and subsequent owners of property served by the stormwater control facilities. To protect the interests of the City and the public at large, any existing deed of trust, mortgage or lien encumbering the property, other than tax liens for the current tax year or governmental improvement assessments, must be subordinated to the maintenance covenant.
- ii. Prior to recording the maintenance covenant, the attorney who prepared the maintenance covenant shall certify in writing to the City that the maintenance covenant was prepared on a City form that contains all the contents required by [Sec. 9.2.2.G.2](#). Certifications

shall be on forms approved by the City and shall accompany the form maintenance covenant.

- iii. The maintenance covenant shall be recorded with the local county register of deeds office immediately following the recording of any new lot served by the stormwater control facility or prior to the issuance of any development permit for any existing lot except for improvements made pursuant to Chapter 8. The maintenance covenant must be the first encumbrance recorded subsequent to the recording of the subdivision plat.
- iv. A recorded copy of the maintenance covenant shall be given to Office of Development Services within five business days following recordation. No building permit shall be issued for the property subject to the maintenance covenant until a recorded copy of the maintenance covenant is provided to the Office of Development Services.

3. Payment to Stormwater Facility Replacement Fund

- a. At the time of either of recording a subdivision plat or issuance of a building permit for a lot not established by subdivision, whichever event first occurs, the developer shall pay to the City a stormwater facility replacement fund payment, which payment shall equal 24% of the estimated cost of constructing all stormwater control facilities shown on applicable development plans.
- b. The purpose of the stormwater replacement fund is to ensure that adequate funds are available to the City for the maintenance, repair replacement and reconstruction of stormwater control facilities required by this UDO. Funds expended from the stormwater facility replacement fund shall be used only for the repair, maintenance, reconstruction and/or replacement of stormwater control facilities, together with the costs incurred by the City associated with any work and/or redesign of the facilities.
- c. No funds from the stormwater facility replacement fund shall be used for administration of this fee program. Monies collected from the stormwater replacement fund may be spent for maintenance, repair, reconstruction and replacement of any stormwater control facility

required by this UDO, and located within in the City limits or its extra-territorial jurisdiction.

- d. Payments collected by the City pursuant shall be kept separate from other revenues of the City. Any funds on deposit not immediately necessary for expenditure shall be invested as allowed in N.C. Gen. Stat. §159-30; all income derived shall be deposited in the separate account and may only be used for repair, maintenance, reconstruction, and replacement of stormwater control facilities together with the costs incurred by the City associated with any work or redesign of the facilities.
- e. Monies, expended from the stormwater facility replacement fund, together with interest, may be recouped by the City from lot owners served by stormwater water control facilities maintained, repaired, reconstructed and replaced by the City or its contractors. All recouped monies and interest shall be returned to the stormwater facility replacement fund.
- f. The payment of stormwater facility replacement fees is not intended as a substitute for security to ensure the construction of the facilities, which security may be required at such point in the development process as specified in City ordinances and policies.

H. Annual Inspections and Inspection Report Required

The responsible party for maintenance of the stormwater control measures or devices must submit an annual inspection report from a qualified registered North Carolina professional engineer, surveyor, or landscape architect to the Stormwater Utility Division of the Public Works Department. The inspections report shall contain all of the following:

1. The name and address of the land owner;
2. The recorded book and page number of the lot of each required stormwater control facility and required open space area;
3. A statement that an inspection was made of all required stormwater control facilities and open space areas;
4. The date of the inspection;
5. A statement that all inspected stormwater control facilities and open space areas are performing properly and are in compliance with the approved stormwater control plan, the applicable maintenance manual required by Sec. 9.2.2.D.2 and the Raleigh Stormwater Control and Watercourse

Buffer Manual. No sampling of pollutant loading is required as part of the inspection;

6. The original signature and seal of the engineer, surveyor, or landscape architect.
7. All inspections report shall be on forms supplied by the City. An original inspection report shall be given to the Office of Development Services beginning from the date of the as-built was first certified under **Sec. 9.2.2.D.3** and each year thereafter on the anniversary date of the certification.

Sec. 9.2.3. Watercourse Buffers

A. Natural Resource Buffers

1. General Rules for All Natural Resource Buffers

Natural resource buffers are intended to provide an area where stormwater flows in a diffuse manner so that the stormwater runoff does not become channeled and infiltration of the stormwater and filtering of pollutants can take place. The following rules apply to all required natural resource buffers.

- a. Natural resource buffers shall be delineated on recorded final subdivision plats or at the time of development of the property.
- b. The City Council may reduce the width of natural resource buffers when it determines that the extent of the natural resource buffer yard will deprive the landowners of reasonable use of their property.
- c. The width of the natural resource buffer shall be measured perpendicularly to the flow of the watercourse and horizontally from the edge of the watercourse banks. When no watercourse banks exist, the centerline of the watercourse shall be used.

2. Falls Watershed Protection Overlay District, Swift Creek Watershed Protection Overlay District and Conservation Management District Watercourse Buffers

Natural resource buffers shall be established along primary and secondary watercourses in a -FWPOD, -SWPOD, or CM District.

a. Primary Watercourse Natural Resource Buffers

Natural resource buffers along primary watercourses must meet the following standards.

- i. The buffer must be a minimum of 60 feet wide along each side of any watercourse draining 25 or more acres.
- ii. The buffer must be a minimum of 35 feet wide along each side of any watercourse draining five or more acres but less than 25 acres.
- iii. The buffer must be a minimum of 35 feet wide along each side of any watercourse which is a perennial stream draining less than five acres.
- iv. In the event that the property or subdivision contains impervious surface lot coverage in excess of 24% in a secondary reservoir watershed protection area, the buffer shall be no less than 100 feet wide along each side of the watercourse.

b. Secondary Watercourse Natural Resource Buffers

Unless part of a primary watercourse natural resource buffer, the secondary watercourse natural resource buffers consists of one or more of the following:

- i. Lands within the flood prone areas that adjoin primary watercourse natural resource buffers; or
- ii. Lands with slopes 15% or greater, adjoining a primary watercourse natural resource buffers or a flood prone area.

3. Metro-Park Overlay District Watercourse Buffers

Natural resource buffers shall be established along primary and secondary watercourses in a -MPOD. Required natural resource buffers shall meet the following standards.

- a. The buffer must be a minimum of 50 feet wide along each side of any watercourse draining 25 or more acres.
- b. The buffer must be a minimum of 25 feet wide along each side of any watercourse draining five or more acres but less than 25 acres.

4. Urban Water Supply Watershed Protection Overlay District Watercourse

Buffers

Natural resource buffers shall be established along primary and secondary watercourses in a -UWPOD. Required natural resource buffers shall meet the following standards.

- a. A minimum 30 foot wide natural resource buffer is required for all perennial waters indicated on the most recent versions of USGS 1:24,000 (7.5 minute) scale topographic maps.
- b. A minimum 100-foot wide natural resource buffer is required for all new development activities that exceed:
 - i. Two dwelling units per acre, or 20,000 square foot lot excluding roadway right-of-way; or
 - ii. 24% lot coverage for all other residential and nonresidential development.
- c. Within -UWPOD, these natural resource buffers do not apply to:
 - i. New detached houses on a nonconforming lot of record.
 - ii. Redevelopment of lots containing detached houses.
 - iii. Activity in a single development that disturbs less than one acre.

B. Uses Allowed Within Natural Resource Buffers

No development, expansion of development or change in use may occur within a required natural resource buffer except as allowed below:

1. Property outside of a riparian water surface buffer, but situated within a required natural resource buffer, shall comply with all of the following:
 - a. Driveways and vehicular surface areas, not including public streets, are allowed; provided that, all of the following are met:
 - i. Any crossing is as close to perpendicular as practicable and insures minimal impact to the surrounding buffer; and
 - ii. The driveway or vehicular use area does not constitute more than 40% of the front yard area of any detached house.
 - b. Fences, walls, statuary, monuments, fountains or signs shall be located outside any primary watercourse buffer.
 - c. Garden crops involving cultivation shall be located outside any primary watercourse buffer.

- d. Greenways, sidewalks and walkways shall be located outside of a primary watercourse buffer, and meet the requirements of [Sec. 9.2.3.C.2](#) or shall be unpaired.
- e. New drainage ditches, roadside ditches, and stormwater outfalls shall meet the requirements of [Sec. 8.8.2](#) and [Sec. 9.2.3.C.2](#).
- f. Playground equipment on single-unit or two-unit living lots.
- g. Ponds, stormwater management ponds, reservoirs, provided that, the standards of [Sec. 9.5.1.C](#), [Sec. 9.5.2.C](#) or [Sec. 9.5.3.C](#) are met.
- h. Public streets, provided that the standards of [Sec. 9.3.6](#), [Sec. 9.3.7](#) and the Raleigh Street Design Manual are met.
- i. Railroad crossings.
- j. Stormwater control facilities and stormwater outfalls shall meet the requirements of [Sec. 9.2.3.C.2](#).
- k. Utility lines.
 - i. Non-electric utility lines are allowed, but if located in a -UWPOD, -FWPOD, -SWPOD, or CM District, the utility lines must meet the standards of [Sec. 9.2.3.C](#) if situated within a primary watercourse buffer area;
 - ii. Underground electrical utility lines are allowed, but if located in a -UWPOD, -FWPOD, -SWPOD, or CM District, the underground utility lines must meet the standards of [Sec. 9.2.3.C](#) if situated within a primary watercourse buffer area;
 - iii. Overhead electric utility lines are allowed, but if located in a -UWPOD, -FWPOD, -SWPOD, or CM District, the overhead utility lines must meet the standards of [Sec. 9.2.3.C](#) if situated within a primary watercourse buffer area.
- l. With the exception of any display area or any gasoline pump island, accessory structures and uses are allowed within a secondary watercourse of a -FWPOD, -SWPOD or CM District, provided that the following standards are met.
 - i. No land-disturbing activity for any allowed use shall affect more than 12% of the portion of a lot within a secondary watercourse natural resource buffer;

- ii. Land-disturbing activity on slopes between 15% and 20% may occur no closer than 80 feet to the edge of a watercourse; and
 - iii. Land-disturbing activity on slopes greater than 20% may occur no closer than 95 feet to the edge of a watercourse.
 - iv. Upon a recommendation of the Stormwater Advisory Board, and approval by the City Council, land-disturbing activities may exceed the standards above; provided that the person submitting the request shows that the potential for stormwater infiltration within a site, the control of stormwater velocity, and the restriction of sedimentation both during and after construction are equal to or greater than that which would have been achieved following standards in this Article. The applicant must also show that maintenance provisions are made to maintain the level of infiltration, velocity control, and sedimentation on the site.
- 2. Property located within a riparian water surface buffer, and within a required natural resource buffer, must also comply with Title 15A of the North Carolina Administrative Code subarticle 2B, section .0233, as amended from time to time.
 - 3. Property located inside of a riparian water surface buffer and outside a required natural resource buffer is subject to Title 15A of the North Carolina Administrative Code subarticle 2B, section .0233, as amended from time to time.

C. Regulations Applied to Uses Allowed in Watercourse Buffers

1. Regulations Applying to All Natural Resource Buffers

Persons who install utility mains shall submit a plan to the City proving that sediment loss during and after installation is less than would have been achieved if other locations outside the buffer were used.

2. Regulations Applying to Both Primary and Secondary Buffer Areas

a. Stormwater Control Facilities in Primary or Secondary Areas

Stormwater control facilities may be allowed within a primary or secondary area only if the following requirements are met:

- i. The constructed uses within the buffer area require the use of such facilities;

- ii. The provisions of [Sec. 9.4.4.G.4](#) require facilities in the buffer area;
- iii. A wet pond is required by [Sec. 9.5.1](#), [Sec. 9.5.2](#) or [Sec. 9.5.3](#); or
- iv. A lake or wet pond is created or preserved.

b. Stormwater Control Facilities in Required Buffers

Stormwater control facilities may be allowed within required buffer areas only if the following requirements are met:

- i. The velocity of the stormwater shall not exceed a non-erodible velocity, according to [Sec. 9.4.4.G.4](#), beyond the outlet of the storm control facilities.
- ii. Trees over two-inch DBH which:
 - a) Would be destroyed by installation of storm control facilities, but not including lakes or wet ponds;
 - b) Lie within the greater distance of either a seven-foot radius or one foot in diameter for each inch of circumference of the tree measured from the outer edge of the grading limits of a storm drainage project shall be replaced by one new tree planted in the same general location, all to achieve the same effect as shown on an approved site plan. The planting must be a minimum caliper of two inches and be at least eight feet tall at time of planting.
 - c) This provision shall not require trees to be planted on cleared land forming the basin of a wet pond or lake.
- iii. Stormwater control facilities, which are permitted in the primary and secondary buffer area, shall comply with [Sec. 9.5.1.C](#), [Sec. 9.5.2.C](#) or [Sec. 9.5.3.C](#).

D. Diffuse Stormwater Flow Required

- 1. All stormwater runoff from new man-made stormwater control facilities, including new ditches or canals, which flow into a watercourse natural resource buffer or into riparian surface water buffer shall be diffused flow so as not to concentrate stormwater or form gullies.
- 2. Diffuse flow shall be maintained.
- 3. The landowner or person in possession or control of the land shall be responsible for dispersing concentrated flow of stormwater runoff.

4. The landowner shall take corrective action to prevent the formation of erosion gullies, and the landowner shall take corrective action to restore diffuse flow.
5. When diffuse flow is impractical to achieve, stormwater control facilities that attenuate the flow of stormwater runoff and control nitrogen may be approved by the City as an alternative means of compliance.

E. Watercourse Buffer Permits

1. No development, expansion of development or change in use may occur on a lot containing a natural resource buffer or open space area required as part of an approved stormwater control plan, without first being issued a written watercourse buffer permit from the Public Works Director.
2. The Public Works Director may not issue a watercourse buffer permit until the boundaries of any required natural resource buffer, riparian surface water buffer, or permanently protected undisturbed open space areas that are adjacent to or encompass a work site are demarcated by a protective fence in the field.
3. No watercourse buffer permit may be issued for work in a riparian surface water buffer regulated by the State pursuant to Title 15A of the North Carolina Administrative Code subarticle 2B, section .0233 unless:
 - a. The North Carolina Division of Water Quality has determined that surface waters are not present;
 - b. The applicant provides sufficient documentation to demonstrate that the requested work is exempt under the rule;
 - c. The North Carolina Division of Water Quality has determined that the requested work is allowable with mitigation under the rule; or
 - d. The North Carolina Environmental Management Commission has issued a variance under the rule.
4. Before receiving a watercourse buffer permit, the applicant must present to the Stormwater Utility Division of the Public Works Department with a copy of the applicable determination of the North Carolina Division of Water Quality or a copy of the variance issued by the North Carolina Environmental Management Commission.

Sec. 9.2.4. Inspections

- A. Agents and officials of the City shall have the right to inspect sites subject to the requirements of this Article to determine whether the measures, devices and open space areas required by this Article to control the rate and quality of stormwater are installed and operating as approved, whether such measures, devices and open space areas are being maintained, and to determine if any encroachments or activities in any watercourse buffer area not permitted by this Article have occurred.
- B. Notice of this right to make inspections shall be included in the stormwater control and watercourse buffer permits.
- C. No person shall obstruct, hamper, delay, resist or interfere with City agents or officials while in the process of carrying out their official duties.

Sec. 9.2.5. Enforcement

A. Civil Penalties

1. Any person who violates any of the provisions of this Article, any regulation, rule or order duly adopted pursuant to this Article; or who undertakes or continues any activity for which a stormwater control plan is required except in accordance with the terms, conditions, and provisions of an approved plan shall be subject to the specific civil penalties set forth in [Sec. 9.2.4.F](#).
2. The penalties shall be assessed by the Public Works Department. The initial civil penalty shall be assessed from the date of the violation. No penalty shall be assessed until the person alleged to be in violation is served by registered mail, certified mail-return receipt requested, personal service notice of violation, or any other means authorized under N.C. Gen. Stat. §1A-1, Rule 4.
3. The notice shall specify a time by which the person must comply with this Article or any regulation, rule, or order, duly adopted pursuant to this Article and inform the person of the actions that need to be taken to comply.
4. In setting the time for compliance, the City shall take into consideration the quantity and complexity of the work, the consequences of delay, the effectiveness of action taken by the violator, and the staff investigative costs, but in no event shall the specified time limits be more than 10 calendar days for compliance, except a shorter time period may be required by the City inspector for an imminent threat to either severely degrade a watercourse or cause severe runoff.

5. The notice shall state that failure to correct the violation within the specified time period will result in the additional civil and criminal penalties for a continuing violation. If, after the allotted time period has expired, corrective action has not been completed, the additional civil penalties shall be assessed from the date of the initial violation. Each day of continuing violation thereafter shall constitute a separate violation.
6. The Public Works Department shall make written demand for payment upon the person in violation and shall set forth the amount of the penalty and the reason for assessing the penalty. Notice of the assessment shall be by registered or certified mail or any other means authorized under N.C. Gen. Stat. §1A-a, Rule 4. If the payment is not received within 30 days after demand for payment is made, the matter shall be referred to the City Attorney for institution of a civil action in the name of the City, in the appropriate division of the general court of justice in Wake County for recovery of the penalty. Such civil actions must be filed within three years of the date the assessment was due.

B. Stop-Work

1. A stop-work order may be issued if an activity is being conducted or was conducted in violation of this Article, any regulation, rule or order duly adopted pursuant to this Article, or is being undertaken or continued for which a stormwater control plan is required except in accordance with the terms, conditions and provisions of an approved plan and that either:
 - a. The activity is being conducted without an approved plan, a permit, or both;
 - b. The violation endangers life, property, or both or that such endangerment is imminent; and
 - c. The activity is being conducted without installing all protective measures and devices in accordance with the approved stormwater control plan.
2. All stop-work orders shall be in writing served on and directed to the person doing the work and shall state the specific work to be stopped, the specific reasons for the stoppage, and the conditions under which the work may be resumed.
3. The stop-work order shall be rescinded by written notice if all the violations for which the stop-work order were issued are corrected, no other violations

have occurred, and all measures necessary to abate the violations have been taken.

C. Criminal Penalties

1. Any person who knowingly or willfully violates any provision of this Article, rule, regulation, order duly adopted or issued pursuant to this Article or who knowingly or willfully undertakes or continues an activity for which a stormwater control plan is required, except in accordance with the terms, conditions, and provisions of an approved plan, shall be guilty of a misdemeanor punishable by imprisonment not to exceed 90 days, or by a fine not to exceed \$5,000, or both, in the discretion of the court.

D. Injunctive Relief

1. Whenever the City Council has reasonable cause to believe that any person is violating or threatening to violate this Article, rule, regulation, or order duly adopted or issued pursuant to this Article, or any term, condition or provision of an approved stormwater control plan, the City may, either before or after the institution of any other action or proceeding authorized by this UDO, institute a civil action to restrain the violation or threatened violation. The action shall be brought in the Superior Court of Wake County.
2. Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter any order or judgment that is necessary to abate the violation, to ensure that restoration is performed, or to prevent the threatened violation. The institution of an action for injunctive relief under this subsection shall not relieve any party to the proceeding from any civil or criminal penalty prescribed for violations to this UDO.

E. Restoration

1. Any person who violates any of the provisions of this Article, any regulation, rule or order duly adopted pursuant to this Article; or who undertakes or continues an activity except in accordance with the terms, conditions, and provisions of an approved stormwater control plan is required to restore the waters, land, and vegetation affected by the violation so as to minimize detrimental effects.
2. The restoration plan shall first be approved by the City. This authority is in addition to any other civil or criminal penalty or injunctive relief

authorized under this section. The owner of any land on which unauthorized tree clearing or tree damaging, in whole or in part has occurred within a watercourse buffer or within a permanently protected undisturbed open space area, shall re-stabilize the land and plant nine inches of tree circumference for every 100 square feet of disturbed land area or disturbed vegetative area. All replacement trees shall be native woodland species. Any watercourse that has been unlawfully piped, relocated or otherwise unlawfully disturbed shall be re-established. These plantings shall be installed within the time limit specified by the Public Works Director. In setting the time limit for compliance, the Public Works Director shall take into consideration the quantity of work, planting season, and the consequences of delay.

F. Specific Civil Penalties

Civil penalties for specific violations of Article 9.2 shall be assessed as follows:

1. Work without a Permit

\$5,000 per day for failure to secure a valid required stormwater control permit and/or watercourse buffer permit prior to conducting any land-disturbing activity, any development or expansion, any placement of impervious surfaces, or any new use or construction.

2. Failure to Follow Plan

\$3,000 per day for failure to conduct a land-disturbing activity, placement of impervious surfaces, development or expansion in accordance with the provisions of an approved stormwater control plan.

3. Failure to Maintain Stormwater Control Facilities

\$2,500 per day for failure to maintain stormwater control facilities.

4. Failure to File Inspections Report

\$2,500 per day for failure to file required inspection report.

5. Failure to Submit As-Built Plans

\$2,500 per day for failure to submit required as-built plans.

6. Failure to Certify

\$2,500.00 per day for failure to certify that installed stormwater measures and devices are in compliance with the Raleigh Stormwater Control and

Watercourse Buffer Manual and City approved the stormwater control plan, including modifications thereto approved by the City.

7. Falsified Certification

\$3,000 for making a falsified certification.

8. Failure to Record

\$2,500 per day for failure to record, or timely record with the local register of deeds required plats identifying stormwater control facilities and/or required maintenance covenants, and/or required escrow agreements.

9. Failure to Revise Plan

\$2,500 per day for failure to file an acceptable, revised stormwater control plan within the established deadline after being notified of the need to do so.

10. Failure to Correct a Violation

\$5,000 per day for failure to correct a violation within the time limitations established in a notice of violation.

11. Failure to Obey a Stop-Work Order

\$5,000 per day for a violation of a stop-work order.

12. Any other Action

\$2,500 per day for any other action or failure to act that constitutes a violation of the Article.

13. Repeated Violation

An additional civil penalty of \$1,000 per day shall be charged to any person assessed a civil penalty for any violation of this Article within the prior two years. No initial civil penalty shall exceed \$5,000; this limitation shall be inapplicable to continuous violations.

Article 9.3. Floodprone Area Regulations

Sec. 9.3.1. Floodprone Areas

A. Mapped Floodprone Areas

1. The mapped floodprone areas are divided into three primary areas.
 - a. Floodway areas;
 - b. Floodway fringe areas; and
 - c. Future conditions flood hazard areas.
2. Floodprone areas are identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and Federal Emergency Management Agency (FEMA) in its flood insurance study and accompanying flood insurance rate maps, flood hazard soil maps and drainage basin study maps. These maps together with all explanatory matter attached to them are adopted and incorporated by reference into this UDO.
3. Floodprone area regulations are superimposed on the zoning districts established in [Article 1.3](#) and the requirements of this Article apply in addition to any base zoning requirement.
4. The City Council may, on its own motion or upon petition after public notice and hearing amend, supplement, change, modify, or repeal the regulations, and the flood hazard boundary maps, and the delineated flood storage area maps. Amendment to flood insurance rate maps originating from the Federal Insurance Administration, or a part thereof shall not become official until a letter stating approval from the Federal Insurance Administration is received by the City.

B. Additional Floodprone Areas

Floodprone areas adjoining creeks, streams, tributaries, and watercourses not defined on the flood hazard boundary maps include the following.

1. Watercourses that drain one square mile or more, lying five vertical feet from the outer limit of the flood hazard soils or the made land which spans flood hazard soils lying along such watercourses; and
2. Watercourses draining less than one square mile are defined as those areas lying within two additional feet vertical from the outer limits of the flood hazard soils, or made land which traverses such soils.

Sec. 9.3.2. Flood Hazard Soils

- A. Flood hazard soils are shown on aerial photographic base maps prepared by the U.S. Soil Conservation Service and the North Carolina Agricultural Experiment Station from a soil survey.
- B. The outer limits of flood hazard soils may be specifically described by metes and bounds or other means from detailed surveys by owners of property on which they lie, provided the accuracy of such description is reviewed and approved by the Public Works Director and that maps or plats of such description are filed with the Clerk of the Superior Court and with the Register of Deeds of Wake County.
- C. Upon approval by the Public Works Director, drainage basin study maps may supersede flood hazard soil maps. Floodprone areas and flood elevation data shall be obtained from the most current drainage basin study maps or the flood studies.

Sec. 9.3.3. Rules for Interpretation of Boundaries

- A. The boundaries of floodprone areas shown on flood insurance rate maps shall be initially determined from the information obtained from the Corps of Engineers, and presented in the flood insurance rate maps and the flood insurance study by FEMA.
- B. Floodprone boundaries shall be based on the engineering data that most accurately reflects actual field and hydrologic conditions. Field and hydraulic conditions shall prevail over mapped boundaries shown on flood insurance rate maps, flood hazard soils, and drainage basin study maps.
- C. In areas between official cross-sections, floodprone area boundaries shall be determined by scaling distances on the flood insurance rate maps. Where interpretation of the lateral location of scaled distances is needed to determine the actual field location of these boundaries, the Public Works Director is directed to make the necessary interpretation and corrections of flood insurance rate maps applying the following:
 1. The regulatory flood protection elevation shall be the controlling factor in locating the outer limits of a floodway fringe or future conditions flood hazard area boundary; and
 2. Interpretations of floodway boundaries on flood insurance rate maps shall be based on the current procedures for interpreting floodways in accord with the FEMA guidelines;

3. Interpretation of the flood hazard soils boundaries shall be based upon hydrologic analysis and hydraulic routing methods used by the Corps of Engineers to establish flood insurance rate maps. These methods are contained in the flood insurance study for Wake County as published by FEMA. Approved interpretations of flood hazard soils boundaries may be described by bearings and distances and drawn with elevations in mean sea level datum given for each cross-section used in the routing computations.
- D. All interpretation requests shall be accompanied with a list of the names, mailing addresses, and Wake County tax parcel numbers of any property owner, including the petitioner, affected by the requested interpretation. The Public Works Director shall give notice by certified or registered mail, return receipt requested, or by personal service to such property owners. The notices required to be given in this section are for the convenience of property owners and any defect or omission shall not impair the validity of any hearing or decision with respect to any interpretation.
- E. The notice shall inform affected property owners that within 14 days of the date of the letter, they may direct the Public Works Director to conduct a public hearing on the matter. All requests for a public hearing shall be directed to the Public Works Director. At least 10 days prior to a requested public hearing, the Public Works Director must by certified or registered mail, return receipt requested, or by personal service give notice of the time and place of the hearing to the petitioner and to affected property owners. Hearings shall follow the procedures prescribed by law for hearings before the Board of Adjustment. The establishment and documentation of field conditions used in interpretations shall be based on certified testimony or information supplied by a licensed registered land surveyor and all calculations shall be made and certified by a registered and qualified professional.
- F. Upon rendering a decision, the Public Works Director shall immediately give notice by certified or registered mail, return receipt requested, or by personal service to the petitioner and to affected property owners. Within 15 days after receipt of written notice of the interpretation, any affected property owner, including petitioner, may appeal the decision of the Public Works Director to the City Council.
- G. All approved interpretations of floodprone boundaries shall be described on maps or plats, which shall then be filed with the Clerk of the Superior Court and with the Register of Deeds of Wake County. The map or plats shall show the

locations of all cross-sections, the elevation at the boundary of the floodway fringe areas, future conditions flood hazard area and flood storage area at the cross-section, the location of a benchmark used for vertical control; its elevation in reference to mean sea level datum, all floodplain boundaries, and the source of the floodplain area. The map or plats shall also bear the name, title and professional seal of the person who supplied the survey and the calculation as well as the date the interpretation was approved by the Public Works Director.

Sec. 9.3.4. Floodway and Non-Encroachment Areas

A. Prohibited Uses

1. No encroachments, including fill, new construction, substantial improvements, structures, manufactured homes, use and other developments, are permitted within the floodway or non-encroachment areas unless it has been demonstrated that the proposed encroachment would not:
 - a. Adversely affect the capacity of the channel's floodway and non-encroachment areas, or drainage facilities or systems;
 - b. Redirect velocities of water of the base flood or future conditions flood onto adjacent properties; or
 - c. Result in any increase in flood levels during the occurrence of the base flood or future conditions flood based on hydrologic and hydraulic analyses. Hydrologic and hydraulic analyses shall be performed in accordance with standard engineering practice and presented to the floodplain administrator prior to issuance of flood permit or Conditional Letter of Map Revision has been approved by FEMA. A Letter of Map Revision must also be obtained upon completion of the proposed encroachment.
2. No chemical storage facilities which store or process acetone, acetylene gas, ammonia, benzene, calcium carbide, carbon disulfide, celluloid, chlorine, gasoline, hydrochloric acid, hydrocyanic acid, magnesium, materials or fuel which are flammable or explosive, nitric acid, oxides of nitrogen, petroleum products, phosphorus, potassium, sodium, sulfur, or any other item which in time of flooding is buoyant or could be injurious to human, animal, or plant life is allowed the floodway and non-encroachment areas.
3. No new solid waste disposal facilities, hazardous waste management facilities and salvage yards are allowed in the floodway or non-encroachment areas.

B. Allowed Uses

Provided they are not otherwise prohibited in this UDO, the following uses are allowed within floodway and non-encroachment areas:

1. General farming, pasture, outdoor plant or nurseries, horticulture, forestry, wildlife sanctuary, game preserves, and other similar agricultural wildlife and related uses;
2. Lawns, yards, gardens, parking areas, play areas, and other similar uses;
3. Golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, parks, greenways, bikeways, hiking or horseback-riding trails, botanical gardens, open space, and other similar private and public recreational uses;
4. Any other use not employing a structure and not subject to floating away during a flood.
5. Any use employing a structure, provided all portions of any structure, including foundation and supports, shall be located outside the floodway area and that any structure which overhangs the floodway is elevated above the depth of the 500-year flood.
6. Other encroachments, including fill, new construction, substantial improvements, structures as defined in the North Carolina State Building Code, manufactured home, use and other developments when it has been demonstrated that the proposed encroachment would not do any of the following:
 - a. Adversely affect the capacity of the channels floodway and non-encroachment areas or drainage facilities or systems
 - b. Redirect velocities of water of the base flood or future conditions flood onto adjacent properties
 - c. Result in any increase in the flood levels during the occurrence of the base flood or future conditions flood all based on hydrologic and hydraulic analyses performed in accordance with standard engineering practice and presented to the floodplain administrator prior to issuance of floodplain development permit, or a Conditional Letter of Map Revision has been approved by FEMA. A Letter of Map Revision must also be obtained upon completion of the proposed encroachment.

C. Restrictions on Existing Structures

1. No structure existing and lying within a floodway shall be considered a nonconforming structure. All such structures may be repaired, improved, strengthened and enlarged; provided that no construction is permitted which will:
 - a. Enlarge the foundation area of the structure within the floodway;
 - b. Increase the bulk of the building or structure below the base flood or future conditions flood level; or
 - c. Enlarge the surface area perpendicular to the direction of flow of the watercourse to which the floodway relates.
2. In the event of damage to an existing structure in a floodway by flood or other means that requires a substantial improvement of the structure, the structure may be repaired; provided that:
 - a. The surface area of the floodway formerly occupied by the structure shall not be increased;
 - b. The repairs to the structure shall incorporate appropriate floodproofing measures; and
 - c. The repairs shall not increase the bulk of the structure below the base flood or future conditions flood level.
3. Additions may be made to existing structures located in a floodway upon recommendation from the Corp of Engineers and upon a letter of approval from FEMA to the City Council that the impact of the proposed addition would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.

Sec. 9.3.5. Floodway Fringe and Future Hazard Areas

A. Prohibited Uses

1. Any use, structure, or encroachment, including fill, which adversely affects the capacity of channels, floodways or drainage facilities or systems is prohibited.
2. The storage or processing of acetone, ammonia, benzene, calcium carbide, carbon disulfide, celluloid, chlorine, hydrochloric acid, hydrocyanic acid, magnesium, nitric acid, oxides of nitrogen, phosphorous, potassium,

sodium, sulphur, or any other item which in time of flooding could be caustic is prohibited.

3. New solid waste disposal facilities, hazardous waste management facilities and salvage yards are prohibited in the floodway fringe areas and future conditions flood hazards areas.
4. In flood hazard soils, areas of watercourses that drain areas less than one square mile may use, structure, or encroachment, including fill, which is located within 90% of the distance of the outer limits of the flood hazard soils, as measured from either side of the center line of the stream channel, or the low point when there is no stream channel, or the midpoint, when there is no stream channel or low point, and which increases the elevation of the base flood or future conditions flood at any point by more than one-half foot, is prohibited.
5. Nothing in this section prevents a landowner from redelineating flood hazard soils areas of water courses which drain less than one square mile to accommodate more than a one-half foot rise of the base flood or future conditions flood if:
 - a. All of the more than one-half-foot flood rise for the base flood or future conditions flood remains on the property of petitioner;
 - b. The establishment and documentation of field conditions used in the redelineation are based on information supplied by a licensed registered land surveyor and all calculations are made and certified by a licensed professional engineer;
 - c. Any sanitary sewer manholes in an area of increased depth are floodproofed by the petitioner;
 - d. The petitioner notifies by certified or registered mail, return receipt requested, all adjoining property owners, and tenants, including the petitioning property. Such notice shall explain the proposed redelineation, and it shall inform such persons that they can appeal the proposed redelineation to the Public Works Director within 10 days after receipt of the letter;
 - e. Appeals from decisions of the Public Works Director shall be to the City Council; and
 - f. Upon the approval of the revised delineation by the City, the new delineation is recorded with the Register of Deeds of Wake County.

Recorded delineations shall mark any additional lands subject to flooding as a "flood storage area."

B. Allowed Uses

Provided they are not otherwise prohibited in this UDO, the following uses are allowed within floodway fringe and future conditions flood hazard areas:

1. Uses Allowed Below the Regulatory Flood Protection Elevation

- a. Uses permitted and regulated in floodways;
- b. Nonresidential structures and residential accessory structures which comply with [Sec. 11.4.6.B.2](#) or [Sec. 11.4.6.B.3](#) subject to [paragraph C](#) below; and
- c. Underground storage and structure foundations and supports which are watertight and substantially impermeable to the passage of water and are designed to withstand the flood depths, pressure, velocities, impact and uplift forces associated with the base flood or future conditions flood at the location of the structure.

2. Uses Allowed Above the Regulatory Flood Protection Elevation

- a. Structures which comply with [Sec. 11.4.6](#);
- b. Manufactured homes and additions to manufactured homes that comply with [Sec. 11.4.6](#);
- c. Structures constructed on fill so that the lowest floor is above the regulatory flood protection elevation, provided the top of the fill is no lower than one foot below the regulatory flood protection elevation for the area and extends in all directions at least 15 feet beyond the limits of any structure or building; and
- d. Open storage of materials subject to floating away during a flood provided the storage is placed on fill at least one foot above the regulatory flood protection elevation.

C. Limits of Development

The lot coverage of any lot may not exceed 50% of the portion of the floodway fringe or future conditions flood hazard areas on that lot, with the following exceptions:

1. Uses permitted in floodways;

2. Ground level loading areas, parking areas, heliports and other similar ground level uses;
 3. Any lot one-half acre or less in size which was recorded prior to May 2, 2006;
 4. No existing or approved structure, for which a building permit has been issued prior to May 2, 2006, shall be considered a nonconforming structure. In the event of damage to such a structure by flood or other casualty requiring a substantial improvement of said structure, the structure may be repaired or rebuilt with:
 - a. An administrative approval by the Floodplain Administrator, if all of the following are met:
 - i. The land use existing at the time of the flood or other casualty remains the same; and
 - ii. The area of the footprint of the structure does not increase; and
 - iii. There is no rise in the Base Flood Elevation or, if there is any rise in the Base Flood Elevation, as determined by a Flood Study identifying upstream and downstream structures that will be impacted, it will:
 - a) not raise the levels of the base flood or future conditions flood onto impacted structures, and
 - b) not redirect velocities of water onto impacted structures.
 - b. A variance by the City Council, if all of the following are met:
 - i. The land use existing at the time of the flood or other casualty remains the same; and
 - ii. The area of the footprint of the structure does not increase; and
 - iii. There are unique circumstances applicable to the site such that strict adherence to the provisions of this Article will result in unnecessary hardship or create practical difficulties; and
 - iv. The variance granted is the minimum necessary to maintain the land use.
 - v. A written request for a variance shall be submitted to the City Clerk and shall state the specific variance sought, the justification for the variance, and what measures will be taken to insure the requirements of this Article have been met to the maximum extent practicable.
 - c. An administrative approval by the Floodplain Administrator for any redevelopment that does not increase the flood elevation and that decreases the bulk of an existing building or structure below the base flood or future conditions flood level by at least 25% of the portion exceeding 50% of the floodway fringe or future conditions flood hazard areas. Any additional fill or material being added as a part of the redevelopment shall be included for calculation of the bulk of the proposed redevelopment. A written request for a variance shall be submitted to the Floodplain Administrator.
5. Notwithstanding the preceding exceptions, the City Council may approve a variance to the 50% lot coverage limitation where the following conditions are met:
 - a. There are unique circumstances applicable to the site such that strict adherence to the provisions of this Article will result in unnecessary hardship or create practical difficulties; and
 - b. The variance is in harmony with the general purpose and intent of this Article; and
 - c. In granting this variance, public safety and welfare has been assured, and substantial justice has been done.
 - d. A written request for a variance shall be submitted to the City Clerk and shall state the specific variance sought, the justification for the variance, and what measures will be taken to insure the requirements of this Article have been met to the maximum extent practicable.
 6. Upon a determination that the extent of the development limit will deprive the land owner of reasonable use of their property, the City Council may allow development in excess of the 50% lot coverage limitation of the floodway fringe or future conditions flood hazard areas.

Sec. 9.3.6. Street Crossings Watercourses

- A. All streets and driveways, or any bridge or culvert associated with any street or driveway, crossing a watercourse, shall be designed and constructed in accordance with City standards.
- B. Street crossings of natural resource buffer yards shall be as close to a perpendicular angle as possible.

- C. Any street or driveway, or any bridge or culvert associated with any street or driveway, which is located in a floodprone area draining less than one square mile, and not shown on a FEMA map, or located outside a floodprone area, may either increase the flow levels and area of flooding of the 10 through 100 year frequency floods or redirect floodwaters if the following is met:
 - 1. Copies of recorded flood easements or flood easements on recorded plats adequate to contain the increased flow levels are first submitted to the City.
 - 2. Land areas contained within the easement boundaries shall be delineated as flood storage areas.
- D. The following additional standards shall apply to all streets and driveways crossing watercourses draining 10 acres or more, and which are located inside floodprone areas:
 - 1. Any street or driveway, or bridge or culvert associated with any street or driveway, shall pass the 100 year flood crest, under free flow conditions that will not result in any increase in the elevation of the 10- through 100-year floods above those specified in the Flood Insurance Study, City of Raleigh, Federal Emergency Management Agency, latest publication.
 - 2. If the drainage areas exceeds one square mile, the maximum rise allowed for the 100-year flood shall not exceed a total of one foot above the base flood elevation established for flood hazard soil areas or those elevations specified either in the drainage basin study maps or in the Flood Insurance Study, City of Raleigh, Federal Emergency Management Agency, latest publication.
 - 3. Base flood elevations for return periods of less than 100-years may be increased to exceed one foot; provided, that the portion of the flood increase which is greater than one foot is either limited to the site boundaries of the property of the owner requesting this increase, or restricted to flood storage areas shown on a recorded plat.

Sec. 9.3.7. Streets in Floodprone Areas

- A. All streets in floodprone areas shall be designed and constructed to provide a minimum of two feet of vertical freeboard, as measured from the predicted 10 year flood peak water surface elevation to the low point of the top of curb, or edge of the pavement for streets without curbs. The following are exceptions to this standard:

- 1. Those portions of streets within allowable vertical and horizontal controls which act as a transition to existing streets; or
 - 2. When the City Council finds that the public benefit derived from the construction of the thoroughfare or collector street would be better served if these standards were varied.
 - 3. All thoroughfares in floodprone areas shall be designed and constructed so as not to be overtopped during the predicted 50 year storm. All others streets in floodprone areas shall be designed and constructed so as not to be overtopped during the predicted 25 year storm.
- B. For any street in floodprone areas, any proposed increase above floodway levels specified in the Flood Insurance Study, City of Raleigh, Federal Emergency Management Agency, latest publication, may be allowed; provided that the change is approved by the Federal Insurance Administration.
 - C. Any proposed street or driveway, bridge or culvert, associated with a street or driveway (including fill), located in the floodprone area must be accompanied by a sealed written statement by a registered professional engineer licensed in North Carolina certifying that such structure is designed and constructed in accordance with this section and shall specify which provision applies.
 - D. Outside of regulated discharge floodplain areas, the maximum depth of any overtopping flow during the predicted 100 year flood shall not exceed one foot. The downstream slope of the roadway section shall be protected from erosion due to the overtopping flow. Streets located within regulated discharge floodplain areas must be located at or above the 100 year flood elevation, consistent with the regulations of [Sec. 9.3.5.A.](#)

Sec. 9.3.8. Warning & Disclaimer of Liability

- A. The degree of flood protection required by this Article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes.
- B. This Article does not imply that areas outside the boundaries of floodprone areas or land uses permitted within such areas will be free from flooding or flood damages.
- C. This Article shall not create liability on the part of the City or by any officer or employee for any flood damages that result from reliance on this Article or any administrative decision lawfully made.

Sec. 9.3.9. Penalties

A. Civil Penalties

1. Any person controlling or managing any building or land where there is placed or there now exists anything in violation of this Article; or, any person who shall commit or assist in the commission of any violation of this Article; or, any person who shall build contrary to this Article after plans and specifications have been submitted to and approved by the Public Works Director; or, any person who shall omit, neglect or refuse to do any act provided for in this article shall be subject to a civil penalty of \$100 per day of continuing noncompliance.
2. No penalty shall be assessed until the person alleged to be in violation is served by registered mail notice to comply. The notice shall set forth a description of the violation for which the penalty has been invoked.
3. As an additional remedy or in lieu of other remedies, the City Council may either before or after the institution of any other action or proceeding authorized by this section, institute any appropriate action or proceeding to restrain or prevent any violation of this Article or the City Council may direct the removal or abatement of any obstruction which violates this article and direct the restoration of conditions existing before the placement of the unlawful obstruction.
4. The institution of an action for abatement or injunctive relief shall not relieve any party to such proceeding from any civil or criminal penalty prescribed for violations of this Article.

B. Criminal Penalties

1. Any person controlling or managing any building or land where there is placed or there now exists anything in violation of this Article or any person who shall assist in the commission of any violation of this Article; or any person who shall build contrary to this Article after plans and specifications have been submitted to and approved by the Public Works Director; or any person who shall omit, neglect, or refuse to do any act provided for in this article shall be guilty of a misdemeanor.
2. Failure to correct an identified violation shall constitute a separate violation for each 10 days that such failure continues after written notice has been received.

Article 9.4. Erosion & Sedimentation Control

Sec. 9.4.1. Applicability

- A. This Article applies to all land-disturbing activities with the following exclusions:
1. Land-disturbing activities, including, but not limited to:
 - a. The breeding and grazing of livestock undertaken on agricultural land for the production of plants and animals useful to man, including but not limited to:
 - i. Forages and sod crops, grains and feed crops, tobacco, cotton, and peanuts;
 - ii. Dairy animals and dairy products;
 - iii. Poultry and poultry products;
 - iv. Livestock, including beef cattle, sheep, swine, horses, ponies, mules, or goats;
 - v. Bees and apiary products; and
 - vi. Fur-producing animals.
 2. Land-disturbing activities undertaken on forest land for the production and harvesting of timber and timber products and conducted in accordance with Forest Practice Guidelines Related to Water Quality, Title 15A North Carolina Administrative Code, subarticle 11, sections 1.010-.0209, as adopted by the North Carolina Department of Environment, Health, and Natural Resources. If land-disturbing activity undertaken on forestland for the production and harvesting of timber and timber products is not conducted in accordance with best management practices set out in Forest Practice Guidelines Related to Water Quality, Title 15A North Carolina Administrative Code, subarticle 11, sections 1.010-.0209, the provisions of this article shall apply to such activity and any related land-disturbing activity on the tract.
 3. Activities for which a permit is required under the Mining Act of 1972, N.C. Gen Stat., Chapter 74, Article 7.
 4. Land-disturbing activities undertaken for the duration of an emergency, activities essential to protection of human life.

- B. This Article does not apply to the following land-disturbing activities, as such activities are subject to the regulatory jurisdiction of the North Carolina Sediment Control Commission:
1. Activities conducted by the State of North Carolina;
 2. Activities conducted by the United States;
 3. Activities conducted by persons having the power of eminent domain;
 4. Activities conducted by local governments, except that the City Council of the City of Raleigh hereby declares its intent that all of the departments and agencies of the City, its contractors and subcontractors shall also comply with the regulations set forth in this article;
 5. Activities funded in whole or in part by the State of North Carolina or the United States.

Sec. 9.4.2. Guidelines Incorporated

The Raleigh Guidelines for Land Disturbing Activities, and amendments, on file in the City Clerk's Office, is adopted by reference as part of this UDO.

Sec. 9.4.3. Objectives

- A. The objectives to be considered in planning, developing, implementing, and maintaining adequate erosion and sedimentation controls and undertaking land-disturbing activities are to:
1. **Identify Critical Areas**
Identify on-site areas which are subject to erosion, and off-site areas which are vulnerable to damage from erosion or sedimentation, and provide special attention to these areas.
 2. **Limit Time of Exposure**
Limit time of exposure of all land-disturbing activities so that such activities are planned and conducted to limit uncovered soil surfaces to the shortest feasible time.
 3. **Limit Exposed Areas**
Limit exposure of all land-disturbing activities so that these activities are planned and conducted to minimize the size of the uncovered area at any one time.

4. Control Surface Water

Control surface water runoff originating upgrade of uncovered soil surfaces to reduce erosion and sediment during the period of exposure.

5. Control Sedimentation

Control all land-disturbing activities so that such activities are planned and undertaken to prevent off-site sedimentation damage.

6. Manage Stormwater Runoff

Manage stormwater runoff when the increase in the velocity of stormwater runoff resulting from a land-disturbing activity can cause accelerated erosion at the point of discharge or receiving watercourse, plans are to include measures to control the velocity at the point of discharge so as to minimize accelerated erosion of the site and sedimentation of the receiving watercourse.

7. Control Operations in Lakes or Natural Watercourses

Control land-disturbing activities in connection with construction in, on, over, or under a lake or natural watercourse so that such activities are planned and undertaken to minimize the extent and duration of disturbance of the lake or natural watercourse. Natural watercourses should be preserved.

- B. An erosion and sedimentation control plan may be disapproved if the plan fails to address the foregoing control objectives.
- C. When deemed necessary by the approving authority, a pre-construction conference shall be held.

Sec. 9.4.4. Standards for Land-Disturbing Activity

No land-disturbing activity shall occur except in accordance with the following standards; wherever there is a conflict between two or more of these standards, the more stringent regulation is controlling.

A. General Requirements**1. Prior Plan Approval**

- a. An erosion and sedimentation control plan must be approved by the Public Works Director at least 30 days prior to any land-disturbing activity of more than 12,000 square feet. This does not restrict the initiation of

land-disturbing activities when the plan is approved and the permit is issued in less than 30 days from initial submission.

- b. In any Reservoir Watershed Protection Area, or for relocation of any natural watercourse, or when off-site sedimentation occurs, an approved erosion and sedimentation control plan is required for land-disturbing activity in areas below 12,000 square feet.
- c. A surety equal to the cost of clearing, grubbing and reseeding a site shall be paid to the City prior to grading permit issuance. If the property is subject to a continuing violation the City may cash the surety.

2. Protection of Property

Persons conducting land-disturbing activity must take all reasonable measures to protect all public and private property from damage caused by land-disturbing activity.

3. NPDES Stormwater Permit for Construction Activity

Documentation required under the site National Pollutant Discharge Elimination System (NPDES) stormwater permit for construction activity shall be submitted to the City.

B. Adequate Erosion Control Measures

- 1. Adequate erosion control measures must be planned, designed, installed, and maintained so as to control accelerated erosion and prevent sedimentation from leaving the site during construction for the maximum calculated peak rates of runoff from the 10-year storm and the 25-year storm in any high-quality water zone.
- 2. Runoff rate calculations shall be submitted using procedures approved by the Public Works Director.

C. Design and Performance Standards and Guidelines

- 1. Copies of design and performance standards which are contained in Guidelines for Land-Disturbing Activities will be published by the City and placed on file in the Office of the City Clerk and the Public Works Director.
- 2. All erosion control plans, erosion control measures, ground covers, maintenance, and calculations must be in accordance with the applicable Guidelines for Land-Disturbing Activities and State of North Carolina Erosion and Sediment Control Planning and Design Manual; in the event of any conflict, the more stringent regulation applies.

D. Buffer Zones

1. Buffer Zones Generally

- a. No land-disturbing activity during periods of construction or improvement to land are allowed in proximity to a lake or natural watercourse unless a buffer zone is provided along the watercourse to confine visible siltation within 25% of the buffer zone nearest the land-disturbing activity.
- b. Unless otherwise provided, the width of a buffer zone is measured from the edge of the watercourse to the nearest edge of the disturbed area.

2. Buffer Zones along Trout Waters

- a. Waters that have been classified as trout waters by the Environmental Management Commission must have an undisturbed buffer zone 25% of the buffer zone nearest the land-disturbing activity, whichever is greater.
- b. The City may approve plans which include land-disturbing activity along trout waters when the duration of the disturbance would be temporary and the extent of the disturbance would be minimal.

3. Buffer Zone Exceptions

This section does not apply to a land-disturbing activity in connection with the construction of facilities to be located on, over, or under a lake or natural watercourse. No land-disturbing activity, except as permitted in [Sec. 9.2.3.B](#) and [Sec. 9.2.3.C](#), or [Article 9.5](#), shall take place:

- a. Within any watercourse buffer area unless it conforms to the requirements of [Sec. 9.2.3.B](#) and [Sec. 9.2.3.C](#) and the provisions of this Article;
- b. Within any high-quality water zone unless it conforms to the requirements of [Article 9.5](#) and the provisions of this Article; and
- c. Within any trout water buffer area unless it conforms to the requirements of [Sec. 9.4.4.I](#).

E. Graded Slopes and Fills

The angle for graded slopes and fills shall be no greater than the angle which can be retained by vegetative cover or other adequate erosion control devices or structures. In any event, slopes left exposed shall be provided with ground cover,

devices, or structures sufficient to restrain erosion. For all areas of moderate or steep slopes, temporary ground cover shall be provided if the slope has not been disturbed for a period of 14 days.

F. Ground Cover

1. Whenever a land-disturbing activity occurs, the person undertaking the activity shall install such ground cover, devices, or structures sufficient to restrain erosion and retain sediment within the boundaries of the tract at all times.
2. Any portion of a site upon which further land-disturbing activity is not being undertaken shall be provided with ground cover sufficient to restrain erosion within 14 calendar days of temporarily or permanently suspending the land disturbing activity. Permanent ground cover shall be installed within 14 calendar days following completion of construction or development.

G. Downstream Protection of Discharge Points and Receiving Watercourses

1. Permanent Protection

Any area of a land-disturbing activity and all receiving watercourses or discharge point must be permanently protected from accelerated erosion caused by increased velocity of stormwater runoff resulting from a land-disturbing activity.

2. Post Construction Velocity

For any land-disturbing activity, the post construction velocity of the 10-year storm runoff in the receiving water-course to the discharge point does not exceed the greater of:

- a. The velocity of the 10-year storm runoff in the receiving watercourse prior to a development;
- b. The velocity specified according to the following table for a discharge point into a receiving watercourse with bare soil or rock bed or banks; or

Material	Maximum Permissible Velocities	
	(F.P.S.)	(M.P.S.)
Fine sand (noncolloidal)	2.5	0.8
Sandy loam (noncolloidal)	2.5	0.8
Silt loam (noncolloidal)	3.0	0.9
Ordinary firm loam	3.5	1.1
Fine gravel	5.0	1.5
Stiff clay (very colloidal)	5.0	1.5
Graded, loam to cobbles (noncolloidal)	5.0	1.5
Graded, silt to cobbles (colloidal)	5.5	1.7
Alluvial silts (noncolloidal)	3.5	1.1
Alluvial silts (colloidal)	5.0	1.5
Course gravel (noncolloidal)	6.0	1.8
Cobbles and shingles	5.5	1.7
Shales and hard pans	6.0	1.8

- c. The velocity specified according to the following for a discharge point into a vegetated receiving watercourse.

Group No.	Vegetation	Depth of Flow (feet)	Maximum Permissible Velocity* (F.P.S.)
1	Bermudagrass	t1	4
		u1	6
2	Tall fescue	t1	3
	Reed canarygrass Kentucky bluegrass	u1	6
3	Grass and legumes, mixed	t1	3
	Weeping lovegrass	u1	4
4	Lespedeza, sericea	t1	2.5
	Red fescue, Red top	u1	2.5

Group No.	Vegetation	Depth of Flow (feet)	Maximum Permissible Velocity* (F.P.S.)
5	Annuals:** Annual lespedeza (KOBE)	t1	2.5
	Sundangrass	u1	2.5
	Small grain (rye, oats, barley): Ryegrass		

*Do not use on channel slopes steeper than 10%, except for side slopes.

**Annuals: use as temporary protection until permanent cover established.

3. General Velocity Standard

Any area of a land-disturbing activity or receiving watercourses subject to stormwater runoff velocities in excess of those specified in paragraph 2 above from accelerated erosion by provision of an erosion-resistant lining of vegetation in accordance with paragraph 2.c above provided, armored, paved, or otherwise nonvegetative watercourse lining shall be provided anywhere the velocity in the receiving watercourse exceeds paragraph 2.c above and the prior development velocity by 10%.

4. Critical Soils

When the following soils (as defined and described in the soil survey of Wake County North Carolina Soil Conservation Service, United States Department of Agricultural, November, 1970) which are especially vulnerable to erosion from stormwater discharge from land-disturbing activities, occur between a point of stormwater discharge and the next confluence of concentrated stormwater runoff, such areas, on- or off-site shall be protected from accelerated erosion by diverting the stormwater discharge from those soil surfaces. The application of this section may in not prevent discharge of stormwater from a land-disturbing activity site. Diversion may include the provision of piped, paved, or armored storm drainage facilities

- Applying sandy loam, 10% to 15% slopes (ApP);
- Cecil sandy loam, 10% to 15% slopes (CeD);
- Cecil sandy loam, 15% to 45% slopes (CeF);
- Creedmore sandy loam, 10% to 20% slopes (CrE);

- e. Enon fine sandy loam, 10% to 15% slopes (EnD2);
- f. Georgeville silt loam, 10% to 15% slopes (GeD2);
- g. Granville sandy loam, 10% to 15% slopes (GrD);
- h. Helena sandy loam, 10% to 15% slopes (HeD);
- i. Herndon silt loam, 10% to 25% slopes (HrD2);
- j. Herndon silt loam, 15% to 25% slopes (HrE);
- k. Lloyd loam, 10% to 15% slopes (LdD2);
- l. Louisburg loamy sand, 10% to 15% slopes (LoD);
- m. Made land, (Ma) greater than 4% slopes under actual field conditions;
- n. Madison sandy loam, 10% to 15% slopes (MdD2);
- o. Madison sandy loam, 15% to 25% slopes (MdE2);
- p. Mayodon sandy loam, 10% to 15% slopes (MfD2);
- q. Mayodan sandy loam, 15% to 25% slopes (MfE);
- r. Mayodan silt loam, 10% to 15% slopes (MyD);
- s. Pinkston sandy loam, 10% to 45% slopes (PkF);
- t. Wake, 10% to 25% slopes (WkE);
- u. Wedowee sandy loam, 10% to 15% slopes (WmD2);
- v. Wedowee sandy loam, 15% to 25% slopes (WmE);
- w. White Store sandy loam, 10% to 20% slopes (WsE);
- x. White Store clay loam, 2 to 15% slopes (WvD3);
- y. Wilkes, 10% to 20% slopes (WwE);
- z. Wilkes, 20% to 45% slopes (WwF);
- aa. Wilkes, 15 to 25 per cent slopes (WxE).

5. Armored

Armored or otherwise non-vegetatively lined watercourse lining shall, in addition to the requirements of paragraph 3. above, be provided at the storm outlet and for those portions of the receiving watercourse which have undergone land-disturbing activity.

6. Exception

Where piped, paved, or armored storm drainage facilities connect to existing off-site piped, paved, or armored storm drainage facilities or where it can be demonstrated that stormwater discharge velocities will not create an erosion problem in the receiving watercourse, none of the foregoing provisions of this section shall apply.

7. Equivalent Alternatives

The management of stormwater runoff to minimize or control downstream channel and bank erosion is a developing technology. Innovative techniques and ideas will be considered and may be used when shown to have the potential to produce successful results. Alternatives include, but are not limited to:

- a. Avoid increases in surface runoff volume and velocity by including measures to promote infiltration to compensate for increased runoff from areas rendered impervious;
- b. Avoid increases in stormwater discharge velocities by using vegetated or roughened swales and waterways in lieu of closed drains and high velocity paved sections;
- c. Provide energy dissipators at outlets of storm drainage facilities to reduce flow velocities to the discharge point. These may range from simple rip-rapped sections to complex structures; and
- d. Protect watercourses subject to accelerated erosion by improving cross-sections or providing erosion-resistant lining.

H. Operations in Lakes or Natural Watercourses

- 1. Any land-disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse shall be planned and conducted in such a manner so as to minimize the extent and duration of disturbance of the stream channel and to prevent off-site sedimentation.
- 2. The relocation of a natural watercourse must meet the provisions of Sec. 9.4.4.G, and must minimize changes to the stream flow characteristics. The relocation of a natural watercourse may not occur in natural resource buffer yards of a -UWPOD, -FWPOD, -SWPOD, -MPOD or CM District.

I. High-Quality-Water Zones

Within high-quality-water (HQW) zones the following additional design standards shall apply:

1. Uncovered areas in HQW zones shall be limited at any time to a maximum total area within the boundaries of the tract of 20 acres. Only the portion of the land-disturbing activity within an HQW zone shall be governed by this section. Larger areas may be uncovered within the boundaries of the tract with the written approval of both the Director of the Division of Land Resources of the North Carolina Department of Environment, Health, and Natural Resources and the City Council.
2. Sediment basins shall be designed and constructed such that the basin will have a settling efficiency of at least 85% for the 40 micron size soil particle transported into the basin by the runoff of that two-year storm which produces the maximum peak rate of runoff as calculated according to procedures required by **Sec. 9.4.4.B**.
3. Newly constructed open channels in HQW zones shall be designed and constructed with side slopes no steeper than two horizontal to one vertical if vegetative cover is used for stabilization unless soil conditions permit a steeper slope or where the slopes are stabilized by using mechanical devices, structural devices or other acceptable ditch liners. In any event, the angle for side slopes shall be sufficient to restrain accelerated erosion.

J. Trout Buffers

Without trout waters as shown on maps on file with the Inspections Department, the following additional regulations shall apply:

1. The 25-foot minimum width for an undisturbed buffer zone adjacent to designated trout waters required by **Sec. 9.4.4.A** shall be measured horizontally from the top of the bank.
2. Where a temporary and minimum disturbance is permitted as an exception by **Sec. 9.4.4.A**, land-disturbing activities in the buffer zone adjacent to designated trout waters shall be limited to a maximum of 10% of the total length of the buffer zone within the tract to be distributed such that there is not more than 100 linear feet of disturbance in each 1,000 linear feet of buffer zone. Larger areas may be disturbed with the written approval of both the Director of the Division of Land Resources of the North Carolina Department of Environment, Health, and Natural Resources and the City Council.

3. No land-disturbing activity shall be undertaken within a buffer zone adjacent to designated trout waters that will cause adverse temperature fluctuations, as set forth, as may be amended, in Title 15 North Carolina Administrative Code Article 28, Section .0211 "Fresh Surface Water Classification and Standards", in these waters.

K. Keep Dirt and Mud Off Public Streets

The accumulation of more than 1/32 inch of dirt, mud, or both on any public street, measured six feet from an entrance or exit of any land-disturbing activity, is prohibited.

Sec. 9.4.5. Maintenance

- A. During the development of a site, any person undertaking the land-disturbing activity must install and maintain all temporary and permanent erosion and sedimentation control measures as required by the approved plan, any provision of this Article, the North Carolina Sedimentation Pollution Control Act of 1973, or any order adopted pursuant to this Article or the Sedimentation Pollution Control Act.
- B. After site development, the land owner or person in possession or control of the land shall install and/or maintain all necessary permanent erosion and sediment control measures, except those measures installed within a road or street right-of-way or easement accepted for maintenance by a governmental agency.
- C. Whenever a permanent erosion and sediment control measure is washed out or is otherwise disabled the land owner or person in possession or control of the land shall replace the permanent erosion and sediment control measure within 15 working days or 30 calendar days, whichever period is shorter, unless a longer period of time is allowed in writing by the Public Works Director.
- D. When energy dissipators or other adequate erosion control measures serve more than one lot and are located on private property, they shall be located on a lot or lots which are as large or larger in size than the typical lot size within the development. There shall be recorded, after approval by the City, in the Wake County Registry a map of those lots and said map shall bear the following note: "The energy dissipator which controls stormwater velocities, stormwater retention or detention devices, and other erosion control measured located on this lot are required to be maintained by the property owner or owners for that portion of the device on his lot in accordance with the requirements of the Raleigh City Code."

- E. Whenever stormwater control facilities serve more than one lot that are not accepted for maintenance by a governmental agency, prior to recording any lot served by the facility a maintenance covenant conforming with **Sec. 9.2.2.G.2** shall be recorded with the local county register of deeds offices.

Sec. 9.4.6. Land Disturbing Activity Permit & Control Plans Required

- A. All land-disturbing activity permits shall be obtained from the Public Works Director.
- B. No person shall initiate any land-disturbing activity in a -FWPOD or -SWPOD in any watercourse natural buffer yard established pursuant to **Sec. 9.2.3**, in open space areas, or to relocate any natural watercourse, or in any other area if more than 12,000 square feet is to be uncovered unless, 30 or more days prior to the anticipated date for initiating the activity, an erosion and sedimentation control plan for such activity is filed with and approved by the Public Works Director; but this shall not restrict the initiation of land-disturbing activities when the plan is approved and the permit is issued in less than 30 days from initial submission.
- C. No permit authorized by this UDO shall be issued until the boundaries encompassing a work site adjacent to any -FWPOD, -SWPOD, watercourse natural resource buffer, trout water buffer, watercourse natural resource buffers in a -MPOD, or in a CM District, a high-quality water zone, any tree protection limits of any -MPODCM District, and -SHOD-, or any area where vegetation is required to be maintained by a conditional use district or an approved site plan are clearly and accurately demarked by a protective fence in the field. The location and extent of all authorized land-disturbing activities shall be similarly demarcated for so long as any land-disturbing activity continues.
- D. The following table summarizes the plan approval process required:

Plan required to be prepared and filed with:	Size of Site		
	Less than 12,000 sq. ft.	Between 12,000 sq. ft. and 1 acre	Greater than 1 acre
City of Raleigh	No	Yes	Yes
Plan approval required prior to commencement of land disturbance	No	Yes	Yes

Sec. 9.4.7. Additional Measures

- A. Whenever the City determines that off-site sedimentation may occur or is occurring as a result of a previous or on-going land-disturbing activity, despite application and maintenance of protective practices, the person undertaking the land-disturbing activity or the person responsible for maintenance will be required to and shall provide further adequate erosion control measures.
- B. The Public Works Director shall serve one or more of the following: any person undertaking a land-disturbing activity or the person responsible for maintenance, or any of their appointed agents, written notice of violation with this section, specifying the noncompliance.
- C. Service shall be done in any of the following ways: Registered mail, certified mail return receipt requested, personal service, or any other means authorized under N.C. Gen. Stat. §1A-1, Rule 4.
- D. The notice shall set forth the measures needed to come into compliance and shall state the time within which such compliance must be completed and warn that failure to correct the violation within the time period will result in the additional civil and criminal penalties for a continuing violation. Alternative equivalent measures may be submitted and, if approved by the City, must be completed within the time period stated for compliance.
- E. In determining the measures required and the time allowed for compliance, the Public Works Director shall take into consideration the economic feasibility, technology, quantity of work required, and extent of damage; it shall then set reasonable and attainable time limits for compliance.
- F. The failure to comply with the notice or approved alternate equivalent measures within the time specified shall be a further violation of this UDO.

Sec. 9.4.8. Appeals

- A. Except as provided in **paragraph D. below**, the disapproval or required modification of any proposed erosion control plan or the refusal to issue a grading or other necessary permit by the City shall entitle the person who submitted the plan or applied for the permit to appeal this decision to the City Council.
- B. Appeal must be made in writing to the City Clerk and the Public Works Director within 15 days of written notice of disapproval, or modification of plan, or refusal to issue a permit.

- C. No appeal from **Sec. 9.4.4.I and Sec. 9.4.4.J**, other than to reduce the width of the natural resource buffer yards, that would be inconsistent with either the Standards of the Water Supply Watershed Act, N.C. Gen. Stat. §143-214.5 or the regulations adopted pursuant thereto shall be granted without the prior approval of the Environmental Management Commission.
- D. Upon receipt of an appeal, the City shall notify in writing, and in sufficient time to allow a reasonable comment period, all other local governments having jurisdiction within the water supply watershed. Each year the City will transmit to the Environmental Management Commission a report on each appeal it receives.
- E. Hearings held pursuant to this section shall be held by the City Council within 30 days from the date the appeal is filed in the City Clerk's office. The City Council shall then render a decision no later than 21 days following said hearing.
- F. If the City Council upholds the disapproval or modification of a proposed soil erosion and sedimentation control plan following the hearing, the person submitting the plan shall within 15 days following the decision of the City Council be entitled to appeal the City Council's action to the Sedimentation Control Commission pursuant to Title 15 4B.0018(b) of the North Carolina Administration Code and N.C. Gen. Stat. §113A-61(c).
- G. In the event that an erosion control plan is disapproved, the City shall notify the Director of the Division of Land Resources of the North Carolina Department of Environment, Health and Natural Resources of such disapproval within 10 days. The City shall advise the applicant and the Public Works Director in writing as to the specific reasons that the plan was disapproved. Notwithstanding the provisions of paragraphs **A. through C. above**, the applicant may appeal the City's disapproval of the plan directly to the Sedimentation Control Commission.
- H. Judicial review of the final action of the erosion plan review committee of the Sedimentation Control Commission may be had in Superior Court of Wake County.

Sec. 9.4.9. Compliance with Plan Requirements

- A. Any person who fails to file a plan in accordance with this UDO or who undertakes a land-disturbing activity except in accordance with provisions of a plan approved under this UDO shall be deemed in violation of this UDO.
- B. If it is determined that any person who undertakes a land-disturbing activity has failed to comply with the provisions of this Article, any regulation, rule, or order,

duly adopted pursuant to this Article, a notice of violation shall be served upon that person or his appointed agent. The initial civil penalty shall be assessed from the date of the violation.

- C. The notice shall be served by registered mail, certified mail return receipt requested, or by any other means authorized under N.C. Gen. Stat. §1A-1, Rule 4. The notice shall specify a date by which the person must comply with this article or any regulation, rule, or order, duly adopted pursuant to this article and inform the person of the actions that need to be taken to comply.
- D. In setting the time for compliance, the City shall take into consideration the quantity and complexity of the work, the consequences of delay, the effectiveness of action taken by the violator, and the staff investigative costs, but in no event shall the specified time limits be more than 10 consecutive calendar days for compliance, except a shorter time period may be required by the City inspector for an imminent threat to either severely degrade a watercourse or cause severe off-site sedimentation.
- E. The notice shall state that failure to correct the violation within the specified time period will result in the additional civil and criminal penalties for a continuing violation.
- F. If, after the allotted time period has expired, corrective action has not been completed, the additional penalties shall be assessed from the date of initial violation, and each day of continuing violation thereafter shall constitute a separate violation under this section.
- G. The notice shall explain the type of enforcement procedures which may be issued for violations. If the person undertaking the land-disturbing activity fails to comply within the time specified, such person shall be in further violation of this UDO.

Sec. 9.4.10. Inspections

- A. Agents and officials of the Planning and Development Officer shall inspect the land-disturbing activities at reasonable times to ensure whether the activities are being conducted in accordance with the approved plan or the requirements of this UDO and to determine whether the measures implemented are effective in controlling accelerated erosion and preventing off-site sedimentation.
- B. Notice of this right to make inspections shall be included in the certificate of approval of each soil erosion and sedimentation control plan.

- C. No person shall obstruct, hamper, delay, resist or interfere with City agents or officials while in the process of carrying out their official duties.

Sec. 9.4.11. Enforcement

A. Civil Penalties

1. Any person who violates any of the provisions of this Article, any regulation, rule or order duly adopted pursuant to this article; or who undertakes or continues a land-disturbing activity for which a soil erosion and sedimentation control plan is required except in accordance with the terms, conditions, and provisions of an approved plan shall be subject to the specific civil penalties set forth in **Sec. 9.4.11F**.
2. The initial civil penalty shall be assessed from the date of the violation.
3. No penalty shall be assessed until the person alleged to be in violation or their appointed agent is served by registered mail, certified mail-return receipt requested, personal service notice of violation, or any other means authorized under N.C Gen. Stat. §1A-1, Rule 4.
4. The notice shall specify a time by which the person must comply with this article or any regulation, rule, or order, duly adopted pursuant to this Article and inform the person of the actions that need to be taken to comply and shall direct the violator to either pay the assessment or contest the assessment within 30 days by filing a petition for a contest case under N.C. Gen. Stat. Chapter 150B, Article 3.
5. In setting the time for compliance, the City shall take into consideration the quantity and complexity of the work, the consequences of delay, the effectiveness of action taken by the violator, and the staff investigative costs, but in no event shall the specified time limits be more than 10 consecutive calendar days for compliance, except a shorter time period may be required by the City inspector for an imminent threat to either severely degrade a watercourse or cause severe off-site sedimentation.
6. The notice shall state that failure to correct the violation within the specified time period will result in the additional civil and criminal penalties for a continuing violation. If, after the allotted time period has expired, corrective action has not been completed, the additional civil penalties shall be assessed from the date of the initial violation. Each day of continuing violation thereafter shall constitute a separate violation.
7. The Revenue Collector of the City shall make written demand for payment upon the person in violation and shall set forth the amount of the penalty and the reason for assessing the penalty; the Revenue Collector, for continuous violations, shall send within each 10 day period additional notices to the person in violation.
8. Notice of the assessment shall be by registered or certified mail or any other means authorized under N.C. Gen. Stat. §1A-1, Rule 4. If the payment is not received within 30 days after demand for payment is made, the matter shall be referred to the City Attorney for institution of a civil action in the name of the City, in the appropriate division of the general court of justice in Wake County for recovery of the penalty. Such civil actions must be filed within three years of the date the assessment was due.
9. Civil penalties collected pursuant to this provision shall be used or disbursed as directed by law.

B. Stop-Work

A stop-work order may be issued if a land-disturbing activity is being conducted or was conducted in violation of this Article, any regulation, rule, or order duly adopted pursuant to this article, or is being undertaken or continued for which a soil erosion and sedimentation control plan is required except in accordance with the terms, conditions and provisions of an approved plan and that either:

1. The land-disturbing activity is being conducted without an approved plan, a permit, or both;
2. The violation endangers life, property, or both or that such endangerment is imminent;
3. The land-disturbing activity is being conducted without installing all protective measures in accordance with the approved soil erosion and sedimentation control plan.
4. All stop-work orders shall be in writing served on and directed to the person doing the work and shall state the specific work to be stopped, the specific reasons for the stoppage, and the conditions under which the work may be resumed. The stop-work order shall be rescinded by written notice if all the violations for which the stop-work order were issued are corrected, no other violations have occurred, and all measures necessary to abate the violations have been taken.

C. Criminal Penalties

Any person who knowingly or wilfully violates any provision of this Article, rule, regulation, order duly adopted or issued pursuant to this Article or who knowingly or willfully undertakes or continues a land-disturbing activity for which an erosion control plan is required, except in accordance with the terms, conditions, and provisions of an approved plan, shall be guilty of a misdemeanor punishable by imprisonment not to exceed 90 days, or by a fine not to exceed \$5,000, or both, in the discretion of the court.

D. Injunctive Relief

1. Whenever the City Council has reasonable cause to believe that any person is violating or threatening to violate this Article, or rule, regulation, order duly adopted or issued pursuant to this Article, or any term, condition or provision of an approved soil erosion and sedimentation control plan, the City may, either before or after the institution of any other action or proceeding authorized by this UDO, institute a civil action in the name of the City for injunctive relief to restrain the violation or threatened violation. The action shall be brought in the Superior Court of Wake County.
2. Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter any order or judgment that is necessary to abate the violation, to ensure that restoration is performed, or to prevent the threatened violation. The institution of an action for injunctive relief shall not relieve any party to the proceeding from any civil or criminal penalty prescribed for violations to this UDO.

E. Restoration

Any person who undertakes a land-disturbing activity and who fails to retain sediment generated by the activity, as required by N.C. Gen. Stat. §113A-57(3), is required to restore the waters and land affected by the failure so as to minimize the detrimental effects of the resulting pollution by sedimentation. This authority is in addition to any other civil or criminal penalty or injunctive relief authorized under this section.

F. Specific Civil Penalties

Civil penalties for specific violations of this Article shall be assessed as follows:

1. Grading without a permit. \$5,000 per day for failure to secure a valid required grading permit prior to conducting a land-disturbing activity.
2. Grading beyond the limits of a grading plan. \$1,000 per day per 1/10 of a graded acre beyond the limits of an existing grading permit without the approval of an amended grading permit, but not to exceed \$7,000 per day.
3. Failure to protect. \$5,000 per day for failure to take all reasonable measures to protect public property or private property, from damage caused by the failure to retain sediment on-site for the design storm.
4. Failure to follow plan. \$3,000 per day for failure to conduct a land-disturbing activity in accordance with the provisions of an approved erosion and sedimentation control plan.
5. Failure to install devices. \$5,000 per day for failure, when more than one acre is disturbed, \$2,500 per day when one acre or less than one acre is disturbed, to install erosion and sedimentation control devices sufficient to retain the sediment generated by the land-disturbing activity within the boundaries of the tract(s) and prevent off-site sedimentation.
6. Failure to maintain permanent and/or temporary measures. \$2,500 per day for failure to maintain adequate erosion control measures.
7. Failure to maintain properly slopes and fills. \$2,500 per day for failure on graded slopes and fills to maintain an angle sufficient to retain vegetative cover or other adequate erosion control measures.
8. Failure to protect exposed slopes. \$2,500 per day for failure, within 15 working days or 30 calendar days of completion of any phase of grading, whichever period is shorter, to plant or otherwise provide exposed, graded slopes or fills with ground cover, devices, or structures sufficient to restrain erosion.
9. Failure to provide adequate cover. \$2,500 per day for failure on a tract when more than one acre is disturbed, \$1,200 dollars per day when one acre or less than one acre is disturbed, to plant or otherwise provide ground cover sufficient to restrain erosion within 15 working days or 60 calendar days, whichever period is shorter, following completion of construction or development.

10. Failure to revise plan. \$2,500 per day for failure to file an acceptable, revised erosion and sedimentation control plan within the established deadline after being notified of the need to do so.
11. Failure to correct a violation after notice. \$5,000 dollars per day for failure to correct a violation within the time limitations established in a notice of violation.
12. Failure to obey a stop-work order. \$5,000 per day for a violation of a stop-work order.
13. Any other action or failure to act that constitutes a violation of this Article. \$2,500 per day for any other action or failure to act that constitutes a violation of this article.
14. Failure to keep dirt and mud off public streets. \$1,000 per day for failure to prevent the accumulation of dirt, mud, or both on public streets in violation of this article plus one dollar per every six linear feet of street if cleaned by the City, its employees, or its contractors.
15. An additional civil penalty of \$1,000 per day shall be charged to any person assessed a civil penalty for any violation of this Article within the prior two years. No initial civil penalty shall exceed \$7,500; this limitation shall be inapplicable to continuous violations.

Sec. 9.4.12. Revisions

The City of Raleigh shall incorporate revisions required by the Sedimentation Control Commission within eight months following receipt of the required revisions. If standards and provisions of this UDO currently meet or exceed the required revisions, the Sedimentation Control Commission must be notified within 90 days of their receipt.

Article 9.5. Watershed Protection Areas

Sec. 9.5.1. Urban Watershed Protection Overlay District (-UWPOD)

A. Natural Resource Buffer Yards

Natural resource buffer yards consistent with [Sec. 9.2.3](#) must be established along all perennial watercourses.

B. Impervious Surface Coverage

1. All lots or portions of lots in existence prior to April 19, 2005, or lots established outside the subdivision process after that date, no additional impervious surface may be added to the property, which would result in greater coverage by impervious surface than allowed by the following table:

Area	No Stormwater Control Measures	Retention, Detention or Capture First 1/2 Inch of Runoff
Primary water supply watershed protection areas	24% or two units of a single-unit living per acre, or 20,000 square foot lot.	50%
Secondary water supply watershed protection areas	24% or two units of a single-unit living per acre, or 20,000 square foot lot, or three dwellings per acre or 36% built upon area for projects without curb and gutter street systems.	70%

2. Land will be deemed compliant with the intensity requirements if the intensity of all existing development at the time of reclassification does not exceed the density requirement when densities are averaged throughout the area.
3. Impervious surfaces include all proposed streets within the development approved after April 19, 2005, and all impervious surfaces on any lot and common area.

4. Calculation of the area of the development includes all lots, street rights-of-way, and common areas within the watershed. Calculation of the area of the development must exclude any widening of existing street rights-of-way, existing street rights-of-way and new street rights-of-way reserved in accordance with the Roadway Corridor Official Map Act, N.C. Gen. Stat. Chapter 136 Article 2E.
5. Redevelopment is permitted when the activity does not result in a net increase of impervious surface and provides equal or greater stormwater control than the previous development and substitutions of impervious surfaces is done in accordance with [Sec. 10.3.5.A](#).
6. Any lot of record existing prior to October 12, 2008, that does not conform to the area or impervious surface coverage regulations of this section and which contains a detached house is exempt from the regulations of this overlay district, except there may be no exemption if the lot is contiguous to any other lot owned by the same person. Additions and expansions to existing structures must comply with the requirements of this overlay district, however, impervious surfaces existing prior to the initial application of these regulations must not be included in the impervious surface coverage calculations.

C. Required Stormwater Measures

1. Stormwater Retention, Detention and Capture

Within any primary or secondary watershed protection area, lots which are connected to both City water and sewer utilities and have a total maximum impervious surface coverage of more than 24%; provided that the first one-half inch of stormwater which directly or indirectly runs off the surfaces in excess of 24%, from the lot is:

- a. Retained for either infiltration into the soil or for evaporation into the air;
- b. Detained for at least a 12-hour period; or
- c. Captured by a wet pond.

2. Stormwater Runoff From Streets

Where impervious surface coverage is greater than 24%, the first inch of stormwater which directly or indirectly runs off any street must be contained within the development in accordance with the retention, or detention, or capture methods set forth above.

D. Maintenance of Stormwater Control Measures

When retention devices, detention devices, or wet ponds serve more than one lot and are located on private property, a maintenance covenant which complies with [Sec. 9.2.2.G.2](#) for sharing the maintenance costs must be recorded. After approval by the City, a map must be recorded in the Wake County Registry, showing the location of the retention device, detention device, or wet pond on the lot; the map must bear the following note: "The stormwater control facilities, which serve more than one lot, that are not accepted for maintenance by a governmental agency are required by the Raleigh City Code to be owned and maintained by a property owners association for which all lot owners shall be a member."

E. Exemptions

1. The impervious surface coverage limitations and stormwater retention, detention, and capture requirements within the secondary water supply watershed protection area of the -UWPOD are inapplicable to any street, right-of-way, lot, or improvement if its stormwater runoff flows by gravity to a watercourse located outside the overlay district. All gravity flow drainage plans shall be approved by the Stormwater Utility Division of the Public Works Department.
2. Any lot of record existing prior to October 12, 2008, that does not conform to the area or impervious coverage regulations contained in the schedule of Maximum Impervious Surface Limits in a -UWPOD and Required Measures and which lot contains a dwelling used for single-unit living is exempt from the regulations of this overlay district, except there shall be no exemption if the lot is contiguous to any other lot owned by the same person. Additions and expansions to existing structures shall comply with the requirements of this overlay district, however, impervious surfaces existing prior to the initial application of these regulations shall not be included in the impervious surface coverage calculations.
3. For all lots or portions of lots in existence prior to October 12, 2008, or lots established outside the subdivision process after that date, the impervious surface coverage limitations and stormwater retention, detention, and capture requirements within the -UWPOD are inapplicable to any single development that disturbs less than one acre.

Sec. 9.5.2. Falls Watershed Protection Overlay District (-FWPOD)

A. Natural Resource Buffer Yards

Natural resource buffer yards consistent with [Sec. 9.2.3](#) must be established.

B. Impervious Surface Coverage

1. All lots or portions of lots in existence prior to March 1, 1988 or lots established outside the subdivision process after that date, no additional impervious surface may be added to the property which would result in greater coverage by impervious surface than allowed by the following table:

Area	No Stormwater Control Measures	Retention Detention, or Capture First Half Inch of Runoff	Wet Ponds Capturing First Inch of Rainfall
Primary water supply watershed protection areas	6%; or 3,500 sq. ft. if this is not more than 12%	N/A	N/A
Secondary water supply watershed protection areas not connected to both City water and sewer utilities	12%; or 3,500 sq. ft. if this is not more than 24%	N/A	N/A
Secondary water supply watershed protection areas with connections to both City water and sewer utilities	12%; or 3,500 sq. ft. if this is not more than 24%	24%	30% or 3,500 sq. ft. if this is not more than 50%; 70% in areas designated in the Comprehensive Plan for higher impervious surfaces

2. Impervious surfaces include all proposed public and private streets within the development approved after June 20, 1993, and all impervious surfaces on any lot and common area.

3. Calculation of the area of the development includes all subdivision lots, new street rights-of-way established after June 20, 1993, and common areas within the watershed. Calculation of the area of the development excludes any widening of existing street rights-of-way, existing street rights-of-way and new street rights-of-way reserved in accordance with the Roadway Corridor Official Map Act, N.C. Gen. Stat. Chapter 136 Article 2E.
4. All lots established after June 20, 1993 must comply with the impervious surface coverage standards of the Article.
5. Substitutions of impervious surfaces done in accordance with **Sec. 10.3.5.A** are allowed.

C. Required Stormwater Measures

1. Stormwater Retention, Detention and Capture

- a. Within any secondary watershed protection area, lots which are connected to both City water and sewer utilities and have a total maximum impervious surface of more than 3,500 square feet may have an impervious coverage of more than 12% and less than 24%; provided that the first one-half inch of stormwater which directly or indirectly runs off the surfaces in excess of 12%, from the lot is:
 - i. Retained for either infiltration into the soil or for evaporation into the air;
 - ii. Detained for at least a 12-hour period; or
 - iii. Captured by a wet pond.
- b. Additional impervious surface coverage is allowed in secondary reservoir watershed protection areas when the first inch of rainfall (including the amount from the first 24% impervious surface coverage) is captured by a wet pond.

2. Stormwater Runoff From Streets

- a. Where impervious surface coverage is equal to or less than 12% in any primary water supply watershed protection area or equal to or less than 24% in any secondary water supply watershed protection area, the first one-half inch of stormwater which runs off any street must be contained within the development capture methods set forth in **paragraph 1.** above.

- b. Where impervious surface coverage is greater than 12% in any primary water supply watershed protection area, or greater than 24% in any secondary water supply watershed protection area, the first inch of rainfall from streets must be captured in a wet pond in accordance with **paragraph 3.** below.

3. Wet Ponds

- a. When impervious surfaces exceed 24% in secondary reservoir watershed protection areas, the first inch of rainfall within an entire development shall be captured in a wet pond of standing water.
- b. Except where located in areas designated in the Comprehensive Plan for higher impervious surfaces, the maximum percent of impervious surface coverage in those portions of the secondary reservoir watershed protection areas connected to both City water and sewer utilities shall not exceed 30% unless the impervious surface coverage is 3,500 square feet per lot or less; in such instances the maximum impervious surface coverage allowed shall not exceed 50%.
- c. When the development is located in portions of secondary reservoir watershed protection areas that are specifically designated in the Comprehensive Plan for higher impervious surfaces, the maximum impervious surface coverage may not exceed 70%; provided that the property is connected to both City water and sewer utilities. No more than five percent of the land area within any one secondary reservoir watershed protection area may be developed with an impervious surface coverage in excess of 50% unless approved by the North Carolina Environmental Management Commission.
- d. The design of wet ponds must meet the specifications and requirements found within the Stormwater Design Manual.

D. Nitrogen and Phosphorous Loading

1. New Development

a. Applicability

- i. The following regulations apply to new development and expansions to impervious surfaces occurring on or after June 1, 2011.

- ii. Substitutions of impervious surface done in accordance with [Sec. 10.3.5.A](#) are allowed provided there is no net increase in impervious surface and equal or greater stormwater control is provided.
- iii. Lots and structures existing prior to June 1, 2011 are not to be considered nonconforming solely because of the application of these regulations. Additions and expansions to existing impervious surfaces, uses and structures must comply with the requirements of these regulations; however, impervious surfaces existing prior to the initial application of these regulations are not to be included in the nitrogen and phosphorous loading calculations.
- iv. All stormwater management plans required for new development on properties located within a -FWPOD must comply with the following regulations.

b. Requirement

- i. Nitrogen and phosphorous loads contributed by the proposed new development activity may not exceed the unit-area mass loading rates as follows:
 - a) Nitrogen: two and two-tenths pounds per acre per year; and
 - b) Phosphorus: thirty-three hundredths of a pound per acre per year.
- ii. The developer's stormwater management plan must determine the load reductions necessary to comply with the above maximums by utilizing the loading calculation method prescribed in the Stormwater Control and Watercourse Buffer Manual.
- iii. Developments that comply with the watershed stormwater control master plan approved for its watershed protection area are exempted from the requirements of this section. Compliance with watershed stormwater control master plan must include:
 - a) The installation within the development of all stormwater control measures shown on the watershed stormwater control master plan;
 - b) The payment of fees in lieu of installation, when allowed by the State; and
 - c) The payment of any applicable drainage fees if the facilities prescribed by the master plan are constructed.

c. Option for Offsetting a Portion of Nutrient Loading

- i. The developer shall have the option of offsetting a portion of the nitrogen and phosphorous load by implementing or funding off-site management measures. Prior to utilizing any off-site option, the developer's stormwater management plan must implement structural stormwater controls that attain a minimum of 60% reduction in increased post-construction nitrogen loading rate and a minimum of 60% in increased post-construction phosphorus loading rate on-site and, when applicable, implementing all engineered stormwater controls for compliance with National Pollutant Discharge Elimination System requirements and any other State-mandated stormwater regulation.
- ii. Offsetting measures provided off-site by the developer must achieve at least equivalent reductions in nitrogen and phosphorus loading as needed on-site to comply with the maximum loading rates specified above. Offsetting measures provided off-site must meet the requirements of State Administrative Rule 15A NCAC 02B .0282, which may include the following:
 - a) Payments to the NC Ecosystem Enhancement Program contingent upon acceptance of payments by that program;
 - b) A City approved offset program prescribed in the Raleigh Stormwater Control and Watercourse Buffer Manual; or
 - c) An offset program proposed by the property owner which is located within the applicable reservoir watershed protection area basin subject to final approval by the Public Works Director.

d. Maintenance of Stormwater Control Measures and Devices

The land owner or person in possession or control of the land must maintain, repair, reconstruct, replace and make payments for all stormwater control measures and devices and open space areas required by the stormwater control plan in accordance with [Sec. 9.2.2.G](#), unless those measures, devices, and open space areas are accepted for maintenance by a governmental agency.

E. Maintenance of Stormwater Control Measures

1. When retention devices, detention devices, or wet ponds serve more than one lot and are located on private property, a maintenance covenant which complies with [Sec. 9.2.2.G.2](#) for sharing the maintenance costs must be recorded.
2. After approval by the City, a map must be recorded in the Wake County Registry, showing the location of the retention device, detention device, or wet pond on the lot; the map must bear the following note: "The stormwater control facilities, which serve more than one lot, that are not accepted for maintenance by a governmental agency are required by the Raleigh City Code to be owned and maintained by a property owners association for which all lot owners shall be a member."

F. Exemptions

1. The impervious surface coverage limitations and stormwater retention, detention, and capture requirements within the secondary watershed protection area of a -FWPOD are inapplicable to any street, right-of-way, lot, or improvement where its stormwater runoff flows by gravity to a watercourse located outside the overlay district. All gravity flow drainage plans must be approved by the Soil Conservation Division of the City.
2. The impervious surface coverage limitations and stormwater retention, detention, and capture requirements are inapplicable to a lot separated by deed conveyance prior to June 20, 1993; provided that, the lot is developed for single-unit living with no more than 3,500 square feet of impervious surfaces and the owner does not own any other contiguous real property which could be recombined.

G. Forestation of Lots

Except as otherwise provided, every lot located within a must provide and maintain an area set aside for trees equal to at least 40% of the lot area in accordance with [Sec. 9.1.9.](#)

Sec. 9.5.3. Swift Creek Watershed Protection Overlay District (-SWPOD)

A. Natural Resource Buffer Yards

Natural resource buffer yards consistent with [Sec. 9.2.3](#) must be established.

B. Impervious Surface Coverage

1. All lots or portions of lots in existence prior to March 1, 1988 or lots established outside the subdivision process after that date, no additional impervious surface may be added to the property which would result in greater coverage by impervious surface than allowed by the following table:

Area	No Stormwater Control Measures	Retention Detention, or Capture First Half Inch of Runoff	Wet Ponds Capturing First Inch of Rainfall
Primary water supply watershed protection areas	6%; or 3,500 sq. ft. if this is not more than 12%	N/A	N/A
Secondary water supply watershed protection areas not connected to both City water and sewer utilities	12%; or 3,500 sq. ft. if this is not more than 24%	N/A	N/A
Secondary water supply watershed protection areas with connections to both City water and sewer utilities	12%; or 3,500 sq. ft. if this is not more than 24%	24%	30% or 3,500 sq. ft. if this is not more than 50%; 70% in areas designated in the Comprehensive Plan for higher impervious surfaces

2. Impervious surfaces include all proposed public and private streets within the development approved after June 20, 1993, and all impervious surfaces on any lot and common area.

3. Calculation of the area of the development includes all subdivision lots, new street rights-of-way established after June 20, 1993, and common areas within the watershed. Calculation of the area of the development excludes any widening of existing street rights-of-way, existing street rights-of-way and new street rights-of-way reserved in accordance with the Roadway Corridor Official Map Act, N.C. Gen. Stat. Chapter 136 Article 2E.
4. All lots established after June 20, 1993 must comply with the impervious surface coverage standards of the Article.
5. Substitutions of impervious surfaces done in accordance with **Sec. 10.3.5.A** are allowed.

C. Required Stormwater Measures

1. Stormwater Retention, Detention and Capture

- a. Within any secondary watershed protection area, lots which are connected to both City water and sewer utilities and have a total maximum impervious surface of more than 3,500 square feet may have an impervious coverage of more than 12% and less than 24%; provided that the first one-half inch of stormwater which directly or indirectly runs off the surfaces in excess of 12%, from the lot is:
 - i. Retained for either infiltration into the soil or for evaporation into the air;
 - ii. Detained for at least a 12-hour period; or
 - iii. Captured by a wet pond.
- b. Additional impervious surface coverage is allowed in secondary reservoir watershed protection areas when the first inch of rainfall (including the amount from the first 24% impervious surface coverage) is captured by a wet pond.

2. Stormwater Runoff From Streets

- a. Where impervious surface coverage is equal to or less than 12% in any primary water supply watershed protection area or equal to or less than 24% in any secondary water supply watershed protection area, the first one-half inch of stormwater which runs off any street must be contained within the development capture methods set forth in **paragraph 1.** above.

- b. Where impervious surface coverage is greater than 12% in any primary water supply watershed protection area, or greater than 24% in any secondary water supply watershed protection area, the first inch of rainfall from streets must be captured in a wet pond in accordance with **paragraph 3.** below.

3. Wet Ponds

- a. When impervious surfaces exceed 24% in secondary reservoir watershed protection areas, the first inch of rainfall within an entire development shall be captured in a wet pond of standing water.
- b. Except where located in areas designated in the Comprehensive Plan for higher impervious surfaces, the maximum percent of impervious surface coverage in those portions of the secondary reservoir watershed protection areas connected to both City water and sewer utilities shall not exceed 30% unless the impervious surface coverage is 3,500 square feet per lot or less; in such instances the maximum impervious surface coverage allowed shall not exceed 50%.
- c. When the development is located in portions of secondary reservoir watershed protection areas that are specifically designated in the Comprehensive Plan for higher impervious surfaces, the maximum impervious surface coverage may not exceed 70%; provided that the property is connected to both City water and sewer utilities. No more than five percent of the land area within any one secondary reservoir watershed protection area may be developed with an impervious surface coverage in excess of 50% unless approved by the North Carolina Environmental Management Commission.
- d. The design of wet ponds must meet the specifications and requirements found within the Stormwater Design Manual.

D. Nitrogen and Phosphorous Loading

1. New Development

a. Applicability

- i. The following regulations apply to new development and expansions to impervious surfaces occurring on or after June 1, 2011.

- ii. Substitutions of impervious surface done in accordance with **Sec. 10.3.5.A** are allowed provided there is no net increase in impervious surface and equal or greater stormwater control is provided.
- iii. Lots and structures existing prior to June 1, 2011 are not to be considered nonconforming solely because of the application of these regulations. Additions and expansions to existing impervious surfaces, uses and structures must comply with the requirements of these regulations; however, impervious surfaces existing prior to the initial application of these regulations are not to be included in the nitrogen and phosphorous loading calculations.
- iv. All stormwater management plans required for new development on properties located within a -SWPOD must comply with the following regulations.

b. Requirement

- i. Nitrogen and phosphorous loads contributed by the proposed new development activity may not exceed the unit-area mass loading rates as follows:
 - a) Nitrogen: two and two-tenths pounds per acre per year; and
 - b) Phosphorus: thirty-three hundredths of a pound per acre per year.
- ii. The developer's stormwater management plan must determine the load reductions necessary to comply with the above maximums by utilizing the loading calculation method prescribed in the Stormwater Control and Watercourse Buffer Manual.
- iii. Developments that comply with the watershed stormwater control master plan approved for its watershed protection area are exempted from the requirements of this section. Compliance with watershed stormwater control master plan must include:
 - a) The installation within the development of all stormwater control measures shown on the watershed stormwater control master plan;
 - b) The payment of fees in lieu of installation, when allowed by the State; and
 - c) The payment of any applicable drainage fees if the facilities prescribed by the master plan are constructed.

c. Option for Offsetting a Portion of Nutrient Loading

- i. The developer shall have the option of offsetting a portion of the nitrogen and phosphorous load by implementing or funding off-site management measures. Prior to utilizing any off-site option, the developer's stormwater management plan must implement structural stormwater controls that attain a minimum of 60% reduction in increased post-construction nitrogen loading rate and a minimum of 60% in increased post-construction phosphorus loading rate on-site and, when applicable, implementing all engineered stormwater controls for compliance with National Pollutant Discharge Elimination System requirements and any other State-mandated stormwater regulation.
- ii. Offsetting measures provided off-site by the developer must achieve at least equivalent reductions in nitrogen and phosphorus loading as needed on-site to comply with the maximum loading rates specified above. Offsetting measures provided off-site must meet the requirements of State Administrative Rule 15A NCAC 02B .0282, which may include the following:
 - a) Payments to the City of Raleigh to implement the City-approved offset program;
 - b) A City approved offset program prescribed in the Raleigh Stormwater Control and Watercourse Buffer Manual; or
 - c) An offset program proposed by the property owner which is located within the applicable reservoir watershed protection area basin subject to final approval by the Public Works Director.

d. Maintenance of Stormwater Control Measures and Devices

The land owner or person in possession or control of the land must maintain, repair, reconstruct, replace and make payments for all stormwater control measures and devices and open space areas required by the stormwater control plan in accordance with **Sec. 9.2.2.G**, unless those measures, devices, and open space areas are accepted for maintenance by a governmental agency.

E. Maintenance of Stormwater Control Measures

1. When retention devices, detention devices, or wet ponds serve more than one lot and are located on private property, a maintenance covenant which complies with **Sec. 9.2.2.G.2** for sharing the maintenance costs must be recorded.
2. After approval by the City, a map must be recorded in the Wake County Registry, showing the location of the retention device, detention device, or wet pond on the lot; the map must bear the following note: "The stormwater control facilities, which serve more than one lot, that are not accepted for maintenance by a governmental agency are required by the Raleigh City Code to be owned and maintained by a property owners association for which all lot owners shall be a member."

F. Exemptions

1. The impervious surface coverage limitations and stormwater retention, detention, and capture requirements within the secondary watershed protection area of a -SWPOD are inapplicable to any street, right-of-way, lot, or improvement where its stormwater runoff flows by gravity to a watercourse located outside the overlay district. All gravity flow drainage plans must be approved by the Soil Conservation Division of the City.
2. The impervious surface coverage limitations and stormwater retention, detention, and capture requirements are inapplicable to a lot separated by deed conveyance prior to June 20, 1993; provided that, the lot is developed for single-unit living with no more than 3,500 square feet of impervious surfaces and the owner does not own any other contiguous real property which could be recombined.

G. Forestation of Lots

Except as otherwise provided, every lot located within a must provide and maintain an area set aside for trees equal to at least 40% of the lot area in accordance with **Sec. 9.1.9.**

Sec. 9.5.4. Inspections

- A. Agents and officials of the City shall have the right to inspect sites subject to the requirements of this Article to determine whether the measures, devices and open space areas required by this Article to control the rate and quality of

stormwater are installed and operating as approved, whether such measures, devices and open space areas are being maintained, and to determine if any encroachments or activities in any watercourse buffer area not permitted by this Article have occurred.

- B. Notice of this right to make inspections shall be included in the stormwater control and watercourse buffer permits.
- C. No person shall obstruct, hamper, delay, resist or interfere with City agents or officials while in the process of carrying out their official duties.

Sec. 9.5.5. Enforcement

A. Civil Penalties

1. Any person who violates any of the provisions of this Article, any regulation, rule or order duly adopted pursuant to this Article; or who undertakes or continues any activity for which a stormwater control plan is required except in accordance with the terms, conditions, and provisions of an approved plan shall be subject to the specific civil penalties set forth in **Sec. 9.5.4.F.**
2. The penalties shall be assessed by the Public Works Department. The initial civil penalty shall be assessed from the date of the violation. No penalty shall be assessed until the person alleged to be in violation is served by registered mail, certified mail-return receipt requested, personal service notice of violation, or any other means authorized under N.C. Gen. Stat. §1A-1, Rule 4.
3. The notice shall specify a time by which the person must comply with this Article or any regulation, rule, or order, duly adopted pursuant to this Article and inform the person of the actions that need to be taken to comply.
4. In setting the time for compliance, the City shall take into consideration the quantity and complexity of the work, the consequences of delay, the effectiveness of action taken by the violator, and the staff investigative costs, but in no event shall the specified time limits be more than 10 calendar days for compliance, except a shorter time period may be required by the City inspector for an imminent threat to either severely degrade a watercourse or cause severe runoff.
5. The notice shall state that failure to correct the violation within the specified time period will result in the additional civil and criminal penalties for a continuing violation. If, after the allotted time period has expired, corrective action has not been completed, the additional civil penalties shall

be assessed from the date of the initial violation. Each day of continuing violation thereafter shall constitute a separate violation.

6. The Public Works Department shall make written demand for payment upon the person in violation and shall set forth the amount of the penalty and the reason for assessing the penalty. Notice of the assessment shall be by registered or certified mail or any other means authorized under N.C. Gen. Stat. §1A-a, Rule 4. If the payment is not received within 30 days after demand for payment is made, the matter shall be referred to the City Attorney for institution of a civil action in the name of the City, in the appropriate division of the general court of justice in Wake County for recovery of the penalty. Such civil actions must be filed within three years of the date the assessment was due.

B. Stop-Work

1. A stop-work order may be issued if an activity is being conducted or was conducted in violation of this Article, any regulation, rule or order duly adopted pursuant to this Article, or is being undertaken or continued for which a stormwater control plan is required except in accordance with the terms, conditions and provisions of an approved plan and that either:
 - a. The activity is being conducted without an approved plan, a permit, or both;
 - b. The violation endangers life, property, or both or that such endangerment is imminent;and
 - c. The activity is being conducted without installing all protective measures and devices in accordance with the approved stormwater control plan.
2. All stop-work orders shall be in writing served on and directed to the person doing the work and shall state the specific work to be stopped, the specific reasons for the stoppage, and the conditions under which the work may be resumed.
3. The stop-work order shall be rescinded by written notice if all the violations for which the stop-work order were issued are corrected, no other violations have occurred, and all measures necessary to abate the violations have been taken.

C. Criminal Penalties

1. Any person who knowingly or willfully violates any provision of this Article, rule, regulation, order duly adopted or issued pursuant to this Article or who knowingly or willfully undertakes or continues an activity for which a stormwater control plan is required, except in accordance with the terms, conditions, and provisions of an approved plan, shall be guilty of a misdemeanor punishable by imprisonment not to exceed 90 days, or by a fine not to exceed \$5,000, or both, in the discretion of the court.

D. Injunctive Relief

1. Whenever the City Council has reasonable cause to believe that any person is violating or threatening to violate this Article, rule, regulation, or order duly adopted or issued pursuant to this Article, or any term, condition or provision of an approved stormwater control plan, the City may, either before or after the institution of any other action or proceeding authorized by this UDO, institute a civil action to restrain the violation or threatened violation. The action shall be brought in the Superior Court of Wake County.
2. Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter any order or judgment that is necessary to abate the violation, to ensure that restoration is performed, or to prevent the threatened violation. The institution of an action for injunctive relief under this subsection shall not relieve any party to the proceeding from any civil or criminal penalty prescribed for violations to this UDO.

E. Restoration

1. Any person who violates any of the provisions of this Article, any regulation, rule or order duly adopted pursuant to this Article; or who undertakes or continues an activity except in accordance with the terms, conditions, and provisions of an approved stormwater control plan is required to restore the waters, land, and vegetation affected by the violation so as to minimize detrimental effects.
2. the restoration plan shall first be approved by the City. This authority is in addition to any other civil or criminal penalty or injunctive relief authorized under this section.

F. Specific Civil Penalties

Civil penalties for specific violations of this Article shall be assessed as follows:

1. Work without a Permit

\$5,000 per day for failure to secure a valid required stormwater control permit and/or watercourse buffer permit prior to conducting any land-disturbing activity, any development or expansion, any placement of impervious surfaces, or any new use or construction.

2. Failure to Follow Plan

\$3,000 per day for failure to conduct a land-disturbing activity, placement of impervious surfaces, development or expansion in accordance with the provisions of an approved stormwater control plan.

3. Failure to Maintain Stormwater Control Facilities

\$2,500 per day for failure to maintain stormwater control facilities.

4. Failure to File Inspections Report

\$2,500 per day for failure to file required inspection report.

5. Failure to Submit As-Built Plans

\$2,500 per day for failure to submit required as-built plans.

6. Failure to Certify

\$2,500.00 per day for failure to certify that installed stormwater measures and devices are in compliance with the Raleigh Stormwater Control and Watercourse Buffer Manual and City approved the stormwater control plan, including modifications thereto approved by the City.

7. Falsified Certification

\$3,000 for making a falsified certification.

8. Failure to Record

\$2,500 per day for failure to record, or timely record with the local register of deeds required plats identifying stormwater control facilities and/or required maintenance covenants, and/or required escrow agreements.

9. Failure to Revise Plan

\$2,500 per day for failure to file an acceptable, revised stormwater control plan within the established deadline after being notified of the need to do so.

10. Failure to Correct a Violation

\$5,000 per day for failure to correct a violation within the time limitations established in a notice of violation.

11. Failure to Obey a Stop-Work Order

\$5,000 per day for a violation of a stop-work order.

12. Any other Action

\$2,500 per day for any other action or failure to act that constitutes a violation of the Article.

13. Repeated Violation

An additional civil penalty of \$1,000 per day shall be charged to any person assessed a civil penalty for any violation of this Article within the prior two years. No initial civil penalty shall exceed \$5,000; this limitation shall be inapplicable to continuous violations.